TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

Friction between dissimilar fibers.

J. Mazur (British Rayon Research Assoc.). *(Letter to the editor). J. Textile Inst. 46:* T712-T714 (November, 1955).

NATURAL FIBERS A 1

Mill tests of machine-picked vs. hand-picked Pima S-1 cotton.

G. W. Pfeiffenberger (National Cotton Council of America). *Textile Ind. 120:* 113-120 (January, 1956).

Commercial spinning tests were made on machine versus hand-picked bales of the 1954 crop of Pima S-1 cotton. There were no significant differences in spinning performance or quality.

Chemical properties of field-weathered cotton.

L. E. Hessler and D. J. Upton (Texas Technological College). *Textile Research J. 25:* 1029-1034 (December, 1955).

This paper deals with the chemical changes in cotton fiber through field weathering. 11 references.

Chemistry and chemical technology of cotton.

Kyle Ward, Jr., editor. Interscience Publishers, Inc., 250 Fifth Ave., New York 1, N. Y., 1955. 782 p. $20.00.

A reference source for information on the chemical technology of the cotton industry. Chapter headings are as follows: (1) *Chemistry of lint cotton,* by J. D. Guthrie and C. M. Conrad; (2) *Sizing,* by F. G. La Piana; (3) *Bleaching,* by E. I. Valko; (4) *Dyeing,* by R. E. Rupp; (5) *Printing and related processing of cotton fabrics,* by A. E. Hirst; (6) *Mercerization,* by C. F. Goldthwait; (7) *Water-resistant treatments,* by H. A. Schuyten; (8) *Fire resistance,* by J. M. Church and S. Coppick; (9) *Treatment of cotton to provide mildew and rot resistance,* by G. A. Greathouse and C. J. Wessel; (10) *The use of resins for creaseproofing, shrinkproofing, glazing, and embossing cotton fabrics,* by D. H. Powers; (11) *Treatment of cotton for the rubber industry,* by E. T. Lessig, M. W. Wilson and H. C. Hebden; (12) *Testing and evaluation of cotton textiles,* by R. K. Worner; (13) *The laundering of cotton fabrics,* by J. F. Oesterling; and (14) *Chemical changes in cotton fabrics during processing and use,* by J. D. Dean. Extensive references.

Cotton ginner's handbook.

T. J. Johnston. Arkansas-Missouri Cotton Ginners Assoc., 1012 North Sixth Street, Blytheville, Ark., 1955. 159 p. $5.00.

Development of an enzymatic method for measuring changes in cotton.

D. Pesant, R. L. W. Farquhar and B. A. McLaren (University of Toronto). *Can. Textile J. 72:* 33-36 (December 30, 1955).

The specificity of enzymes makes them ideal for measuring changes in textile fibers. A method of analysis, using cellulase, has been applied to cotton cellulose. A method was developed to find optimal conditions for the cellulose-cellulase system. 22 references.

Observations on certain fluorescent spots in raw cotton associated with the growth of micro-organisms.

P. B. Marsh, K. Bollenbacher, J. P. San Antonio and G. V. Merola. *Textile Research J. 25:* 1007-1016 (December, 1955).

Evidence is presented which indicates that certain fluorescent spots observed in raw cotton under ultraviolet light are associated with the prior growth of microorganisms on the fiber. A striking and characteristic type of spot which fluoresces bright greenish-yellow has been noted frequently. Spots of this particular type have been shown to be associated with growth on the fiber of the fungus *Aspergillus flavus.* The fluorescent fiber in commercial samples exhibited abnormally high swelling in alkali and decreased strength. A white-fluorescent spot, less striking and less easily recognized than the above, has been found to be associated with certain isolates of the fungus *Alternaria* sp. Several other common types of microbial growth on cotton prior to harvest were not accompanied by distinct differences in fluorescence as compared with uninfected fiber, indicating that under the conditions here employed ultraviolet examination is not a general

tool capable of detecting all of the types of microbial infection present in commercial cotton. 13 references.

The coarseness of jute fiber-strands and its relation to spinning quality.

B. K. Chakrabarti. *Indian Textile J. 66:* 49-52 (October, 1955).

The difficulties of determining coarseness and staple length for jute are briefly discussed. Experimental procedures and results are described. Results indicated that the higher the coarseness of the fiber strands the higher the irregularity and the lower the strength of the yarn. 3 references.

Note on the lignin and hemicellulose of jute.

P. B. Sarkar and A. K. Mazumdar (Indian Central Jute Committee). *Textile Research J. 25:* 1016-1020 (December, 1955).

Some facts about a combination between lignin and polyuronide hemicellulose of jute fiber are noted. An alkali lignin has been isolated from the fiber and described. An approximate estimate has been made of the different constituents removed by dilute caustic soda at ordinary temperature from jute. 18 references.

Degumming of ramie: development of degumming methods with allied tests and microscopical examinations.

G. Thomson and H. N. Lee. Boston: Fabric Research Laboratories, Inc., February, 1949. 74 p. Microfilm $4.50, enlarged print $13.80. Available from Library of Congress, Photoduplication Service, Publications Board Project, Washington 25, D. C. PB 118 672.

Methods tried in evaluating degummed fiber are described. A detailed discussion of materials, procedures, and results in experimental work is presented. Tests indicate that successful degumming requires a chemical treatment to attack the bonds holding the cell fibers together, a mechanical treatment to cause complete separation of the fibers, and a coating or other processing of fibers to prevent readherence on drying. The aluminum sulfate process is thoroughly investigated and tested in fiber and yarn form.

MAN-MADE FIBERS A 2

Studies on the crimp of fibers. Part 2. On changes in crimpiness of crimped spun viscose.

A. Tateishi and N. Osawa. *Bull. Textile Research Inst. (Japan) No. 34:* 24-30 (September, 1955); *in Japanese (English summary).*

Skin and allied structural effects in nylon.

S. C. Simmens (British Nylon Spinners Ltd). *(Letter to the editor). J. Textile Inst. 46:* T715-T720 (November, 1955).

Chemical denaturation of groundnut protein and fiber formation.

W. E. F. Naismith (Imperial Chemical Industries). *J. Appl. Chem. 5:* 549-551 (October, 1955).

An ultracentrifugal examination of groundnut protein treated with various bases was made. It was shown that only bases with a dissociation constant higher than about 10^{-4} cause an appreciable reduction in the molecular weight of the protein and are suitable for fiber formation with protein. 5 references.

Electrical resistance of synthetic and cellulose acetate fibers.

G. E. Cusick and J. W. S. Hearle (University of Manchester). *J. Textile Inst. 46:* T699-T711 (November, 1955).

An experimental technique used for measuring resistances along the length of fibers up to 10^{15} ohm compared to 10^{12} ohm in an earlier investigation is described. The paper gives results of measurement of the resistance of synthetic fibers and cellulose acetate, between 33 per cent, and 98 per cent relative humidity. 5 references.

Physical properties of papers from synthetic fibers.

J. K. Hubbard, F. H. Koontz, J. R. McCartney and R. A. A. Hentschel. *Tappi 38, No. 5:* 257-261 (1955). Through *BCIRA 35:* 576 (1955).

The production and properties of laboratory-made papers from nylon, Orlon, and Dacron fibers are described. The properties of these papers, particularly nylon, suggest that in many applications they could replace fabrics. Data on the strength of sewn and heat-sealed joints in the papers are reported.

YARN PRODUCTION B

Improved mixing by means of the automatic Rieter blender.

F. Preysch. *Melliand Textilber. 36, No. 9:* 958-959 (1955); *in German.* Through *BCIRA 35:* 765 (1955).

Constructional details and mechanism of the automatic mixer of the fibrous material, supplied by the bale openers in form of flocks, are described and illustrations are given.

How to spin Vicara blends in wool and cotton type mills.

L. Billings (Virginia-Carolina Chemical Corp.). *Textile Ind. 120:* 76-80 (January, 1956).

Vicara blends on the woolen, worsted, and cotton systems.

Factors influencing fiber blends.

K. C. Smith. *Textile Wkly. 55:* 1923-1924 (December 16, 1955).

A brief discussion of the importance of fiber length and fiber diameter.

Spinning staple of Orlon acrylic fiber.

K. T. Barrett (Du Pont Co. of Canada Ltd). *Can. Textile J. 72:* 53-59 (December 16, 1955).

Availability of Orlon in tow and staple opens two possibilities for manufacturing procedure: converters and cards. Depending on existing equipment and factory organizations, either or both can be successfully exploited.

Guide surfaces and tension devices.

E. I. du Pont de Nemours and Co., Inc. Wilmington, Del., 1955. 4 p. Bulletin X-38. Free.

CARDING AND COMBING B 2

Control carding operations with tabulated data.

E. H. Helliwell. *Textile World 106:* 74-75, 198 (January, 1956).

A system of carding records is described which standardizes production, quality and cost. The system avoids duplication, prevents errors, and permits comparisons.

Device for examining the point of card wire.

J. Textile Machinery Soc. Japan 1: 73-74 (November, 1955); *in English.*

A practical portable device with microscope was developed which shows both top and side view of the wire points at the same time.

Work study in the cardroom.

Textile Merc. 132: 501-503, 520 (March 25, 1955); 549-550, 552 (April 1, 1955); 635-638 (April 15, 1955); 678-680 (April 22, 1955). Through *BCIRA 35:* 429 (1955).

These articles deal with redeployment at the card, at the drawframe, and at the comber and with the productivity and labor organization of speed frames.

On the O. S. carding engine.

H. Ohnishi and I. Hayashi (Kurashiki Spinning Co., Ltd). *J. Textile Machinery Soc. Japan 1:* 16-23 (November, 1955); *in English.*

The Ohnishi Super carding engine is claimed to increase productivity more than 50% over the conventional type without lowering sliver quality or increasing waste. Its flat is divided into two sections, which rotate independently of each other. One worker and one stripping roller are installed at a point between the two sections of the flat. Photographs. Diagrams. Tables.

Crushing mechanisms for wool cards.

A. Glasser. *Melliand Textilber. (English ed.) 36, No. 2:* 108-110 (1955).

Description of the Peralta roller mechanism for crushing any hard materials in the card web.

DRAWING AND ROVING B 3

Yarn strengths improve with bi-coil processing.

Globe Rev. 2, No. 1: 11-20 (1955).

A series of tests was carried out by Tweedales and Smalley Ltd. on the production of counts of 20's and 30's from sliver produced by bi-coil methods of processing and alternatively from sliver made by normal methods. The results from these tests indicated that the sliver and yarn made on the bi-coil system were fully equal to and in many instances superior to those produced by normal methods. Processing information is given in detail.

Study on sliver strength and draft efficiency.

T. Ogawa, N. Matsumoto and Y. Miyamoto (Kanegafuchi Spinning Co., Ltd). *J. Textile Machinery Soc. Japan 1:* 47-53 (November, 1955); *in English.*

The purpose of this study was to investigate why the draft of cotton spinning machines is affected by variations in temperature and relative humidity, and to fix a reasonable roll distance of the drafting element which would eliminate irregularity of draft. Inquiry showed a correlation between the tensile strength of the fiber bundle and the unevenness of the weight of delivered sliver and roving due to variations in temperature and relative humidity. Tests of the tensile strength of sliver and roving, and measurement of the draft efficiency, revealed that the effect of variations in temperature and relative humidity can be reduced by fixing a proper roll distance in the break draft zone and a proper degree of roller gripping force. Application of these results to spinning machines has reduced unevenness of yarn.

Cotton and rayon staple fiber processing on drawing frames. Maintenance of count number evenness, causes of faults and their elimination.

A. Friedrich. *Melliand Textilber. (English ed.) 36, No. 2:* 116-126 (1955).

The normal adjustments of the cylinders and distances between them are given for three-cylinder speed frames (for various cotton qualities) and reference is also made to measures for preventing uneven rovings, the reversing mechanism, faulty bobbin shapes, and cone belts. Examples are given for the calculation of spindle and cylinder revolutions, individual drafts, count, twist, twist constant, etc.

Whitin Even-Draft drawing frame.

Whitin Rev. 22: 4-22 (November-December, 1955).

This new frame is a high speed machine built with eight deliveries, each four delivery section being independently driven. The drafting element in each delivery uses a four-over-five roll arrangement. Removal of waste fibers from the rolls and drafting area is achieved by the use of air vacuum. The cleaning mechanism is an integral part of the machine. Photographs. Diagrams.

Drawing frame with divided sliver delivery.

O. von Grossmann. *Melliand Textilber. (English ed.) 36, No. 2:* 112-114 (1955).

The new Kruse draw-frame, model SBK 5 (constructed by Deutsche Spinnereimaschinenbau Ingolstadt) is described, whose characteristic innovation consists in imparting to the divided slivers a false twist as a result of which the slivers are strengthened and delivered into the can in a smooth condition.

The development of new draw frames.

M. Pavek. *Textil No. 10:* 300-301 (1954); *in Czech.* Through *BCIRA 35:* 594 (1955).

A new draw-frame construction is described, characterized in that the fibers in two drafting zones are guided by a traveling leather apron which moves with the same velocity as the third roller pair. The two guide rollers in the second and third drafting zone increase the control of the fibers and reduce the proportion of floating fibers. Spinning experiments have shown that total drafts of 80 can be obtained without abnormally high intermediate drafts and without impairment of yarn quality. Various modifications of this draw-frame are suggested.

The development of drawing frames in cotton spinning.

R. Locker. *Z. ges. Textil-Ind. 57, No. 19:* 1239-1242 (1955); *in German.* Through *BCIRA 35:* 765 (1955).

A survey is made of the present state of draw-frame constructions, with reference to the FAK, ZL, SKF-Norma, Casablanca S 3 and N, Balmes, WST, KEPA and Pfenningsberg systems. The general tendencies for further developments are pointed out.

Cone roving.

H. A. McLean. *Wool Record 88:* 1472-1476 (December 22, 1955).

Suggestions are given for efficient maintenance and use of cone machinery in worsted drawing.

O-type presser.

H. Ohnishi (Kurashiki Spinning Co., Ltd). *J. Textile Machinery Soc. Japan 1:* 71-72 (November, 1955); *in English.*

The O-type presser and experimental studies leading to its development are described.

Whitin American system Quik-Set roving frame.

Whitin Rev. 22: 31-37 (November-December, 1955).

The Quik-Set roving frame is described and illustrated with photographs and diagrams.

SPINNING, WINDING, TWISTING B 4

Large package spinning changeovers and allied problems.

R. W. Rawlinson. *Whitin Rev. 22:* 23-30 (November-December, 1955).

Statistical analysis of yarn breakage on spinning frame.

Y. Hori (Tokyo University). *J. Textile Machinery Soc. Japan 1:* 54-57 (November, 1955); *in English.*

The problem of yarn breakage during spinning is quite serious, but it is difficult to predict the number of yarn breakages, because the tension and strength of the yarn always vary. The author has used simple mathematical models of the variation of the tension and the strength of the yarn, and calculated the probability of yarn breakages. The result has shown that the variation of the yarn strength influences yarn breakages most.

The use of nomograms in ring-spinning.

F. Putzke. *Textil-Rundschau 10, No. 9:* 479-485 (1955); *in German.* Through *BCIRA 35:* 766 (1955).

The use is demonstrated of nomograms for converting the values, found by weighing, for all yarn counts and lengths; calculating the count of a folded hosiery yarn with a rayon thread in it (silver yarn); calculating the draft for a yarn and its adjustment on a ring-spinning machine; determining the relationship between weight of the

material fed, doubling, drafting and the final weight on the double-head porcupine drawing frame; calculating the yarn twist and twist factor.

Management and maintenance of flax spinning machinery.

S. A. G. Caldwell. *Textile Mfr. 81:* 641-643 (December, 1955).

Electric drive for spinning frames.

English Electric Co. *Textile Wkly. 55:* 1843 (December 9, 1955).

A simple system for driving textile ring spinning frames using two identical motors is described and illustrated.

The minimum twist necessary for fiber cohesion and its role in the spinning process.

A. Barella. *Industrie Textile:* 87-90 (February, 1955); *in French.* Through *BCIRA 35:* 665 (1955).

The method described makes it possible to determine the minimum twist for cohesion, and to obtain valuable data, such as the upper limit of twist which can be applied during the preparatory processes preceding the actual spinning, so as to avoid such disadvantages as faults and irregularities which excessive twist in the roving can produce in the yarn. The theories advanced appear to be applicable to all the fibers tested. The effect of fiber length on the minimum twist cohesion is pointed out.

How to change the yarn twists in the spinning of the large denier fibers.

T. Agatsuma and S. Fujino. *Bull. Textile Research Inst. (Japan) No. 30:* 32-41 (October, 1954); *in Japanese (English summary).*

Model yarns are constructed and studied.

Experimental study on double-twister for worsted yarns.

I. Ohno and T. Matsumoto (Japan Wool Textile Co., Ltd). *J. Textile Machinery Soc. Japan 1:* 40-44 (November, 1955); *in English.*

This study was made to ascertain experimentally whether a two-for-one twister for silk yarn, rayon yarn, etc., could be used to twist hairy worsted yarn. An economical two-for-one twisting-spindle was made by slightly improving the traditional spindle for the ring-twister. A new method was devised for drawing yarn out of a yarn-package while twisting hairy worsted yarn with the newly-designed twisting-spindle. The new method of drawing yarn out of a package led to a new large package automatic twisting-machine.

Double-deck uptwister machine.

Josef Pfenningsberg and Co. (Germany). *Textile Wkly. 55:* 1826 (December 9, 1955).

A high-speed uptwister, designed for synthetics, is described and illustrated.

Universal twister for synthetic yarns.

Prince-Smith and Stells Ltd. *Textile Wkly. 55:* 1902-1903 (December 16, 1955); *Textile Merc. 133:* 1078-1081 (December 16, 1955).

The Universal ring twisting frame is designed for doubling and cabling nylon or similar synthetic fiber yarns in two operations, eliminating the necessity for assembly winding.

The influence of cop build on winding speed.

H. Jehle. *Melliand Textilber. 36:* 895-897 (September, 1955); *in German.* Through *Textile Merc. 133:* 734 (October 21, 1955).

Results are given of experiments undertaken to determine the effect of cop build during spinning on the speed of unwinding at subsequent processes. The three quantities studied were the wind, the chase angle, and what might be termed layer-locking motions. It was found that by reducing the wind and the chase angle increases in winding speed could be achieved, while further improvements could be made by using a two-point builder cam in place of the more usual single-point cam. The best results were obtained with a special MW cam supplied by Deutsche Spinnereimaschinenbau Ingolstadt. By using the methods indicated, speed increases of 50% were found to be possible, although these were occasionally found to be accompanied by disadvantages which reduced spinning efficiency. Such reductions should generally be offset by improvements in winding efficiency.

Work study in winding.

Textile Merc. 132: 149-152 (January 28, 1955). Through *BCIRA 35:* 315 (1955).

This article describes how work study can be applied to non-automatic winding of winders' bobbins or cones from cops.

YARNS B 5

The strength and behavior of nylon/cotton blended yarns undergoing strain.

A. Kemp and J. D. Owen. *J. Textile Inst. 46:* T684-T698 (November, 1955); *Shirley Inst. Mem. 28:* 229-243 (August, 1955).

This paper deals with work undertaken as part of a general investigation of the properties of nylon/cotton blended yarns. Section A of the paper deals with the stress-strain curves obtained for a range of blended yarns. In Section B an attempt has been made to explain the main fea-

tures of the stress-strain curves in terms of the behavior of the individual fibers within the blended yarns. In order to do this it was necessary to investigate in some detail the breakage of the cotton fibers within a blended yarn undergoing strain. 9 references.

Dynamical relations between the yarn and the properties of the fiber. Part 1.

T. Agatsuma and S. Fujino. *Bull. Textile Research Institute (Japan) No. 31:* 1-12 (December, 1954); *in Japanese (English summary).*

Theoretical studies.

Processing the new bulk yarns.

P. Abbenheim. *Skinner's Silk and Rayon Record 29:* 1283-1286 (December, 1955).

Various techniques and problems in processing bulk yarns are mentioned.

Bulk yarns bring bulk business.

P. Lennox-Kerr. *Skinner's Silk and Rayon Record 29:* 1278-1282 (December, 1955).

A general survey of European and American bulk yarns with a table of 23 yarns giving trade name, licenser, method of production, and characteristics and applications.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

Utilization of tamarind seed pectin in textile industries. Part 2. Economical and statistical evaluation.

G. R. Savur. *Indian Textile J. 66:* 33-35 (October, 1955).

13 references.

Warping tricot beams of du Pont zero twist acetate.

E. I. du Pont de Nemours and Co., Inc. Wilmington, Del., 1955. 10 p. Bulletin A-24. Free.

Rewound filling.

P. H. Farmer (Foster Machine Co.). *Textile Age 20:* 22-28 (January, 1956).

The author bases his conclusions on the industrial engineers' approach and describes the machines, technique and economics to appraise the merits and limitations of rewinding as opposed to the direct spinning of filling yarns.

The effect of package build on the yarn speed during unwinding.

H. Jehle. *Melliand Textilber. 36, No. 9:* 895-897 (1955); *in German.* Through *BCIRA 35:* 769 (1955).

Experiments have shown that the speed with which the thread is drawn from ring tubes can be increased by modifying the package build: (1) changing the movement of the ring rail or using a two-point eccentric; (2) reducing the tube angle (increasing the lift of the ring rail); (3) combining both methods. Speeds of up to 900 m/min can be obtained in this way, but the increase of ring-rail velocity is associated with increased spinning costs, and the reduction of the tube angle with a reduced package volume.

WEAVING C 2

A new pirn for automatic looms.

M. Matthes. *Melliand Textilber. (English ed.) 36, No. 2:* 156-160 (1955).

A long-wearing pirn for automatic weaving has been developed in which the metal rings have been replaced by a steel tube containing the base ferrule. This system permits the use of plastic pirn bodies which can be molded into the steel tube, so that the pirn body, rings, and ferrule constitute a single unit.

New tension spring for loom harnesses.

K. Garternicht. *Melliand Textilber. (English ed.) 36, No. 2:* 146 (1955).

Advantages of a tension spring motion for harnesses are discussed.

Researches on power-operated loom for rice-straw mat.

T. Ohta, M. Tanimura, M. Hamada and A. Shindoh (Osaka University). *J. Textile Machinery Soc. Japan 1:* 64-69 (November, 1955); *in English.*

A suitable picking mechanism consisting of a shuttle, picker and pick cam of special structure have been devised. Diagrams, etc.

New looms for heavy wool fabrics with higher production.

W. Liebchen. *Melliand Textilber. (English ed.) 36, No. 2:* 126-130 (1955).

Discussion of automatic high-speed looms and methods of minimizing strain on warp and weft. Diagrams.

Leno devices and leno weaves.

W. T. Swatek. *Melliand Textilber. (English ed.) 36, No. 2:* 147-154 (1955).

A number of mechanisms and attachments used in leno weaving are discussed and illustrated with diagrams.

Warp breakage control on the loom.

J. Schneider. *Melliand Textilber. (English ed.) 36, No. 2:* 134-146 (1955).

Mechanical and electric warp stop motions with droppers (for silk, wool and cotton) and heddle stop motions are described and illustrated.

A new shuttleless loom with single pick.

G. Chatalard. *Industrie Textile:* 601-603 (August, 1955); *in French.* Through *BCIRA 35:* 770 (1955).

In this loom (exhibited at the International Exhibition, Brussels) the weft is inserted into the shed from a large cop, placed in a fixed position at the side of the loom, by means of a rigid device in the form of a ring with small sections. Some of the typical movements of this new loom are described and illustrations are given.

Gentilini-Ripamonti loom.

Textile Merc. 133: 1020-1021, 1053 (December 9, 1955).

This new and revolutionary Italian loom weaves at speeds of up to 900 picks per minute and dispenses with heddles, reed and shuttles, as normally understood. The action of the loom is described and illustrated with diagrams.

Developments in weaving mechanisms.

D. C. Snowden. *Texture 2:* 147-152 (December, 1955).

A general survey, concluding that loom developments have been of an evolutionary rather than a revolutionary nature. Progress has been along the lines of improved design, increased automation and higher working speeds.

Paper card cam dobby.

H. Hanke. *Melliand Textilber. (English ed.) 36, No. 2:* 132-134 (1955).

Perforated paper card dobbies are described and illustrated with diagrams.

Selvedge thread cutters for automatic looms.

Melliand Textilber. (English ed.) 36, No. 2: 160-164 (1955).

Mechanical and electrical automatic thread cutting temples are described and illustrated.

Influence of warp-tension on the construction and the quality of fabrics. Part 1. On the position of the lease rod in weaving.

K. Hosoda and R. Awano. *Bull. Textile Research Inst. (Japan) No. 33:* 17-59 (June, 1955); *in Japanese (English summary).*

Control of weft and shuttle during the weaving cycle. Part 2.

J. Starkie. *Textile Mfr. 81:* 624-627 (December, 1955).

Automatization in woolen worsted weaving.

Textile Merc. 133: 1069-1074 (December 16, 1955).

Conversion of Dobcross looms to the Fischer system of automatic weft replenishment.

KNITTING C 3

New wrap stripe half-hose machine.

I. R. Thornton. *Textile Merc. 133:* 1112-1113 (December 23, 1955).

New wrap stripe half-hose machine (Model EAS56), introduced by the Trent Engineering Co. Ltd., gives continuous production of men's footwear. Its most important feature is a reliable attachment which enables a sock to be produced having a mock rib top made by laying in covered rubber yarn.

Multiple-rib interlock fabrics and their reversible stitch designing.

T. Nakahara and T. Okamoto (Kyoto University). *J. Textile Machinery Soc. Japan 1:* 58-63 (November, 1955); *in English.*

Up to now it has not been possible to produce the same designs on both sides of an interlock knit fabric without tucking. A means has now been devised whereby this is possible. It is a multiple-rib fabric, as distinct from a double-rib fabric. The same designs can be produced on both sides of a multiple-rib fabric without tucking but by the use of colored yarns. Diagrams for the production of multiple-rib fabrics are given.

Full fashioned knitting machines for outerwear.

Gebr. Scheller. *Melliand Textilber. (English ed.) 36, No. 2:* 164-166 (1955).

A full-fashioned flat knitting machine controlled by a perforated card apparatus is briefly described. Photographs.

FABRICS C 4

Using blends of viscose staple with cotton for work clothes.

J. Boyd, M. Butterworth and C. P. Tattersfield (Courtaulds Ltd). *Can. Textile J. 72:* 60-63 (December 16, 1955); 37-42 (December 30, 1955).

Details of the production of the yarns and fabrics and the serviceability trials and laboratory tests are followed by a number of conclusions.

Study of properties of fabric blends.

K. Hosoda and others. *Bull. Textile Research Inst. (Japan) No. 33:* 60-79 (June, 1955); *in Japanese (English summary).*

Design in woven structure. Part 37. Fancy check patterns.

D. C. Snowden. *Wool Rev. 27:* 31 (December, 1955).

Three dimensional fabric developed.

United States Rubber Co. *Textile Age 20:* 34-36 (January, 1956).

Woven with polyethylene yarn and conventional fibers, the fabric, called Trilok, forms puffs when the polyethylene is shrunk by boiling water in a matter of seconds. Its first use will be as an automotive and furniture upholstery fabric where the cushioning effect of its three dimensional structure is said to offer unusual comfort and free circulation of air between the person and the seat.

On the compressibility of textile materials.

S. Tsuchibayashi, K. Hosoda, M. Maeda and T. Iizuka. *Bull. Textile Research Inst. (Japan) No. 31:* 13-26 (December, 1954); *in Japanese (English summary).*

A study of the relation between fabric compressibility and hand.

Characteristics and properties of natural and synthetic felts.

Textile Mfr. 81: 629-630 (December, 1955).

Characteristics and properties of felts are discussed. A new synthetic heat-resistant felt of polyester fibers is described.

Report on nonwoven fabrics.

R. B. Pressley. *Textile World 106:* 77-89 (January, 1956).

Information is given on important manufacturers of nonwoven fabrics, what nonwoven materials are used for, and equipment and manufacturing methods.

Bonded fiber fabrics.

G. H. Elliott. *J. Textile Inst. 46:* P737-P741 (November, 1955).

A general survey of methods of manufacture and uses.

Study of the control of permeability of nylon parachute cloth at high and low differential pressures.

H. J. Bickford, D. K. Kuehl and T. L. Rusk, Jr. New York: Cheney Brothers, March, 1955. 53 p. Order from Office of Technical Services, Washington 25, D. C. $1.50. PB 111 855.

Twenty-four differently constructed samples of nylon cloth in the desired weight range were woven, finished and tested. A special mathematical study of the relationship between air permeability at one half inch of water pressure differential and at higher pressure differentials was made.

FINISHING AND CHEMICAL PROCESSING D

Highlights of the past year.

P. J. Wood (Royce Chemical Co.). *Am. Dyestuff Reptr. 44:* 864-868 (December, 1955).

New bleaching, dyeing, and printing machinery.

New products developed since November, 1954.

Am. Dyestuff Reptr. 44: 837-863, 892 (December 5, 1955).

Products which have been placed on the market or further developed since 1954 are divided into three sections: (1) dyestuffs, (2) textile chemicals, and (3) wet processing and laboratory equipment.

1955 Technical manual and yearbook of the American Association of Textile Chemists and Colorists.

New York: Howes Publishing Co., 1955. 623 p. $5.00. Available from AATCC, Lowell Technological Institute, Lowell, Mass.

CHEMICAL PROCESSES D 1

The effect of chemical treatment on the physiological properties of textiles.

O. Mecheels. *Melliand Textilber. 36, No. 7:* 722-728 (1955); *in German.* Through *BCIRA 35:* 645 (1955).

Heat retention, water absorption, and transmission of perspiration, as well as bacteriological and mycological conditions of the human skin (especially as a result of perspiration) and their effect on the physiological properties of fibers, were studied on wool (chlorinated and chromated, respectively), peroxide-bleached and boiled linen, impregnated cotton, and synthetic fibers (chromium-treated Perlon). Results are tabulated and photomicrographs are given.

The decomposition of sodium chlorite in bleaching solutions. (Uber den Zerfall von Natriumchlorit in Bleichlosungen).

H. Hefti. St. Gallen, Switzerland: Eirene-Verlag M. Pfandler, 1955. 79 p. *In German.* Summary in *BCIRA 35:* 773 (1955).

Bibliographical abstracts on evaluation of brightening agents for detergent usage.

L. E. Weeks. American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., 1955. 9 p. $1.50.

37 references, with abstracts.

Textile finishing developments. Part 2. Bleaching.

Textile Wkly. 54: 2080-2084 (December 31, 1954); *55:* 46, 48, 50 (January 7, 1955). Through *BCIRA 35:* 208 (1955).

This review of the literature (including patents) covers the bleaching of cotton, hydrogen peroxide versus hypochlorite bleaching, the color of raw cotton, optimum bleaching conditions for cotton, the oxidation of cellulose, wool scouring, degumming of raw silk, optical bleaching agents, and synthetic detergents.

Some data on the chemistry of cotton fibers. Treatment of the fabric with hypochlorite prior to alkali boiling.

P. P. Viktorov. *Tekstil. Prom. 13, No. 12:* 25-29 (1953); *in Russian.* Through *BCIRA 35:* 600 (1955).

In order to ascertain the changes taking place in the chemical composition of cotton during treatment with acid and hypochlorite, analyses were carried out on raw cotton, cotton treated for 2 hours with sulfuric acid (5 g/1.) and rinsed carefully; cotton treated with hypochlorite (1 g/1. active chlorine) for 1 hour and rinsed; cotton treated for 2 hours with sulfuric acid (5 g/1.), rinsed with water, and then treated for 1 hour with hypochlorite (1 g/1. active chlorine) and rinsed carefully. During treatment with acid, the proteins are partly removed in the form of their corresponding salts reducing thereby the possibility of chloramine derivative formation during subsequent hypochlorite treatment. Treatment with hypochlorite and particularly that with hypochlorite and acid simultaneously, removes to a large extent all cellulose-accompanying substances (protein, waxy substances, pectins). The steep decrease of waxy substances (from 0.55-0.3 per cent), in particular, indicates damage to the primary wall of the cotton; this makes the fibers more accessible to the action of alkali during boiling.

Studies on condensates for resin treatment. Part 4. Visco-elastic behavior of crease of textile fibers. Part 5. Relationship between crease angle of cellulose fiber, temperature, time and load. Part 6. Creep of cellulose fiber and crease resistance. Part 7. On visco-elastic properties of various modified viscose rayons.

K. Murakami, S. Sakaguchi and T. Akiba. *Bull. Textile Research Inst. (Japan) No. 34:* 54-94 (September, 1955); *in Japanese (English summary).*

Development of crease-resistant finishing in the light of patent rights.

F. Duhm. *Melliand Textilber. 36, No. 9:* 938-940 (1955); *in German.* Through *BCIRA 35:* 777 (1955).

This is a review of German and British patents concerned with the impregnation of fabrics with resin condensation products.

Studies of condensates for resin treatment. Part 1. Study of qualities of various catalysts. Part 2. On the etherification of monomethylolurea and methanol. Part 3. On the etherification of dimethylolurea and a lower class alcohol.

K. Murakami, S. Sakaguchi and T. Akiba. *Bull. Textile Research Inst. (Japan) No. 32:* 65-93 (March, 1955); *in Japanese (English summary).*

Solvent scouring of grease wool. Part 1. Review.

D. P. Norman and W. W. A. Johnson (New England Spectrochemical Laboratories). *Am. Dyestuff Reptr. 44:* 893-900, 911 (December 19, 1955).

The principles and practice of the solvent scouring of wool are reviewed in the light of current knowledge of solvent extraction as an engineering process. The general terms and operations common to all solvent extraction systems are defined and illustrated, and the problems which are peculiar to wool scouring are described in detail. 19 references.

Phosphates and their use in the textile industry.

F. Kroemer. *Melliand Textilber. 36, No. 8:* 832-834; *No. 9:* 947-951 (1955); *in German.* Through *BCIRA 35:* 773 (1955).

A review. 35 references.

The shrink-proofing of cotton fabrics, textiles from regenerated cellulose, wool, and textiles from synthetic fibers. Testing the shrink-fastness.

SVF Fachorgan Textilveredlung 10, No. 9: 447-518 (1955); *in German.* Through *BCIRA 35:* 777 (1955).

A series of articles.

Shrink resistant wool: a review of progress to date. Part 2.

R. W. Moncrieff. *Texture 2:* 157-160 (December, 1955).

A general survey. 11 references.

Silicones for textile finishing.

Midland Silicones Ltd. *Textile Merc. 133:* 1032-1034, 1052 (December 9, 1955).

Application, preparation and use of Dri-Sil.

Waterproofing and water repellency.

J. D. Reid and R. K. Worner. *Encyclopedia of chemical technology.* v. 14. p. 962-980. New York: Interscience, 1955.

A survey of waterproofing treatments for textiles, paper, leather, and concrete and masonry. 75 references.

DYEING AND PRINTING D 2

Historical notes on the wet-processing industry. Part 10. Yankee dyers.

S. M. Edelstein (Dexter Chemical Corp.). *Am. Dyestuff Reptr. 44:* 887-891 (December 5, 1955).

Textile finishing developments. Part 3. Dyeing and printing.

Textile Wkly. 55: 120-124 (January 14, 1955); 195-200 (January 21, 1955); 280-286 (January 28, 1955).

Numerous references to the literature.

The application of conductivity measurements. An aid in dyeing with vat dyes.

H. Borsten and F. L. J. van Lamoen. *Tex 14, No. 9:* 1247-1252 (1955); *in Dutch.* Through *BCIRA 35:* 775 (1955).

The experiments described show that by controlling the alkalinity of the dye bath by means of conductivity measurements in combination with potential measurements, dyeings are obtained that can be satisfactorily reproduced (especially in the case of high-temperature dyes), and considerable savings in hydrosulfite can be effected.

Considerations in dyeing Acrilan.

W. H. Hindle (Chemstrand Corp.). *Skinner's Silk and Rayon Record 29:* 1312-1320 (December, 1955).

Cellulose triacetate dyeing with disperse dyestuffs.

J. Eisele and W. Federkiel. *Melliand Textilber. (English ed.) 36, No. 2:* 208-218 (1955).

The problem of achieving penetrated fast dyeings.

H. Schleicher. *Melliand Textilber. (English ed.) 36, No. 2:* 170-172 (1955).

Vat dyes and dyeing processes for satisfactory penetration are discussed.

Techniques in printing nylon fabrics.

R. E. Fletcher. *Textile Mfr. 81:* 652-654 (December, 1955).

In considering the main problems encountered in printing nylon, this paper examines the properties, etc., of disperse acetate dyestuffs, acid and direct groups, vat dyes, premetallized and pigment dyestuffs, with printing paste recipes.

Application of Soledon dyestuffs to spun viscose piece-goods. Part 1.

J. B. Jackson. *Dyer 114:* 907-910 (December 9, 1955).

Chemistry and properties and winch dyeing methods are discussed.

The application of Soledon dyestuffs to spun viscose woven piece-goods. Part 2.

J. B. Jackson. *Dyer 114:* 985-993 (December 23, 1955).

Dyeing on the jig, padding techniques, viscose union fabrics, and economic considerations are discussed.

Sandocryl process for the dyeing of polyacrylonitrile fibers.

C. H. A. Schmitt, C. W. Saalfrank and H. R. Walker (Sandoz Chemical Works, Inc.). *Am. Dyestuff Reptr. 44:* P904-P907 (December 19, 1955).

The Sandocryl method is a refinement of the cuprous-ion method where metallic copper is used as the reducing agent in the bath. This paper includes the advantages of the Sandocryl method over the old method, the type and amount of copper to be used, and the conditions of the dyebath to obtain the best results. 5 references.

Package dyeing stretch nylon yarn in muffs.

H. Girard (Central Yarn and Dyeing Co.). *Textile Ind. 120:* 73-75 (January, 1956).

The finished grey yarn is skein wound and the skeins then shrink into what appears to be a muff of crimped and relaxed filaments. These muffs, or relaxed skeins, are then shipped to the dyer where they are dyed in the same form and then rewound to cones ready for use in knitting.

Pad-roll dyeing technique.

Ciba Rev. No. 112: 4099 (October, 1955).

Pad-Roll dyeing system and its application.

C. O. Eriksson, N. Landquist and B. Mellbin. *Am. Dyestuff Reptr. 44:* P877-P881 (December 5, 1955).

The Pad-Roll system is a new, high-production method for open-width dyeing with substantive dyestuffs, invented and developed in Sweden by C. O. Eriksson and N. D. Landquist, dyehouse manager and chief research chemist of the Rydboholm Co. Diagram.

Studies of the dyeing of nylon with acid dyes. Part 1. Measurement of affinity and the mechanism of dyeing.

E. Atherton, D. A. Downey and R. H. Peters (Imperial Chemical Industries, Ltd). *Textile Research J. 25:* 977-993 (December, 1955). 17 references.

Solidegal GL, a novel leveling agent for Indanthren dyestuffs.

E. Scheel. *Melliand Textilber. (English ed.) 36, No. 2:* 180-190 (1955).

A detailed discussion of dyeing with Indanthren dyes and reasons for their poor leveling properties is followed by a discussion of the action and advantages of Solidegal GL as a leveling agent.

Dye-adsorption on cellulosic materials in alcoholic medium.

T. Yurugi. *Bull. Textile Research Inst. (Japan) No. 34:* 16-23 (September, 1955); *in Japanese (English summary).*

Introduction to the theory of wool dyeing. Part 2. The kinetic approach.

L. Peters. *J. Soc. Dyers Colourists 71:* 725-732 (December, 1955).

Vat dyes.

D. I. Randall. *Encyclopedia of chemical technology.* v. 14. p. 664-673. New York: Interscience, 1955.

A survey with 25 references.

Irgalan dyes—neutral-dyeing metal-complex dyes.

G. Schetty (J. R. Geigy AG). *J. Soc. Dyers Colourists 71:* 705-724 (December, 1955).

The chemistry of chromium-complex dyes is discussed in relation to dyeing properties on wool, with particular reference to the problem of avoiding skittery dyeing arising from differences between individual wool fibers. The structural features required for dyes to give non-skittery dyeings under neutral conditions are deduced, and it is shown how these researches resulted in the production of the Irgalan (Gy) dyes. 44 references.

Estimation of fluorescent brightening agents.

G. G. Taylor (Clayton Dyestuffs Co. Ltd). *J. Soc. Dyers Colourists 71:* 697-704 (December, 1955).

The present paper is limited to comparative strength determination of chemically identical samples. The problems are closely analogous to those of the strength determination of dyes, the differences arising mainly from the nature of the light source and the small amount of fluorescent light available. Particular difficulties, such as the *cis-trans* isomerism of stilbene derivatives, are more prominent with fluorescent brightening agents than with dyes.

Interaction between dyes and hydroxylated polymers.

G. Centola. *Tinctoria 52, No. 9:* 341-348 (1955); *in Italian.* Summary in *BCIRA 35:* 775 (1955).

Investigations on the phototropy of Indanthren dyestuffs.

H. Waibel. *Melliand Textilber. (English ed.) 36, No. 2:* 174-178 (1955).

The author defines the various conditions under which phototropy may occur. Tables showing the phototropic properties of a wide selection of Indanthren dyestuffs are included. Attention is drawn to the influences exerted by the aftertreatment, the dyestuff concentration, the other components in combination dyeing, and by the material to be dyed. Phototropic change can be quickly reversed by subjecting the fiber to a suitable aftertreatment.

Coloring textiles with pigment dyestuffs.

F. F. Jacobs (Nova Chemical Corp.). *Textile Age 20:* 38-46 (January, 1956).

The Helizarin system is outlined.

Stability to ageing of pigment prints and pigment dyeings.

K. Craemer. *Melliand Textilber. 36, No. 9:* 928-931 (1955); *in German.* Through *BCIRA 35:* 776 (1955).

Since pigments have no affinity for fibers, the durability of pigment prints or dyeings depends essentially upon the stability of the binding agent. If the latter is destroyed owing to insufficient resistance to ageing, its binding power is also destroyed, affecting thereby the resistance to rubbing and washing of the print. This occurs more extensively and rapidly in light-colored prints or dyeings, where the light-protective action of the pigment is lower. Photographs are given to show the loss of fastness to washing and rubbing of prints exposed to light, in which the printing paste contains an unstable binder.

Manofast in textile printing.

P. Krug (Hardman and Holden, Ltd). *Dyer 114:* 939-947 (December 9, 1955).

A review of the applications of thiourea dioxide as an acidic reducing agent. Includes references.

MECHANICAL PROCESSES D 3

Shrink-resistant knitted goods by Krumpex process.

G. Memminger. *Melliand Textilber. (English ed.) 36, No 2:* 190-192 (1955).

The Krumpex steam process is described for stabilization of tubular knit fabric. Diagram and photographs.

DRYING D 4

Important variables in textile drying.

W. H. Poole (Proctor and Schwartz, Inc.). *Can. Textile J. 72:* 49-53 (June 3, 1955).

The author discusses the principles of drying along with several important variables, including type of fiber, fiber thickness, thread count, twist, cloth construction, type of dye, etc.

Drying.

F. A. Gluckert (E. I. du Pont de Nemours and Co., Inc.). *Ind. Eng. Chem. 47:* 527-531 (March, 1955).

Part of the *10th annual review of unit operations in chemical engineering.* 67 references on drying fundamentals, 48 references on drying methods, and 34 references on drying specific materials.

Determination of the residual moisture content in drying.

W. Rainer and F. Mack. *Melliand Textilber. (English ed.) 36, No. 2:* 194-200 (1955).

Fabric drying may be automatically controlled by means of the electronic conductometer system. The theory of this type of measurement is discussed, as well as its practical use with drying machinery.

Automatic control in drying.

Geoffrey E. Macpherson, Ltd. *Dyer 114:* 1019-1021 (December 23, 1955).

If the Mahlo Textometer incorporating an automatic control unit is fitted, the operating speed of the drying machine is claimed to be controlled to fine limits and all material leaving the dryer will conform to a predetermined standard of moisture content.

TESTING AND MEASUREMENT E

Use of the range instead of the standard deviation.

G. E. Noether (Boston University). *J. Am. Statistical Assoc. 50:* 1040-1055 (December, 1955).

Considerable interest exists in statistical quality control work in the textile industry in utilizing the range as a simpler, though somewhat less precise, measure in place of the standard deviation. The paper discusses range methods which have been suggested in the statistical literature in solving problems about the means and variances of one or two normal populations. 7 references.

A study of industrial use of probability statistics in the physical sciences.

J. H. Toulouse. *J. Am. Statistical Assoc. 50:* 1014-1021 (December, 1955).

A survey of engineers and scientists, based on 450 questionnaires, showed that the lack of full statistical applications in their work was due to the following reasons: lack of trained personnel, 35%; statistical methods not considered applicable, 19%; "too new", "too formal" and "too involved" comprised the remainder. Written-in opinions, where considered typical, are quoted.

The analysis of variance: a graphical representation of a statistical concept.

B. A. Barnes, E. Pearson and E. Reiss. *J. Am. Statistical Assoc. 50:* 1064-1072 (December, 1955).

Methods are furnished whereby the complex ideas in analysis of variance can be better visualized by graphic means. 5 references.

Some uses of statistics in plant maintenance.

J. Armstrong, Jr. (E. I. du Pont de Nemours and Co., Inc.). *Ind. Quality Control 12:* 12-17 (January, 1956).

Presents a new statistical approach to maintenance operation, with textile spinning and weaving examples.

Electronics in your future.

T. J. Fox. *Textile Ind. 120:* 100-103 (January, 1956).

A look at electronic controls in textile manufacturing and finishing.

Examination of textiles in ultra-violet light.

N. Kuhn. *Z. ges. Textil-Ind. 57, No. 19:* 1234-1236 (1955); *in German.* Through

BCIRA 35: 781 (1955).

Examination of raw cotton in ultra-violet light by means of a mercury vapor lamp with "wood-glass" filter makes it possible to determine the degree of maturity and to detect any impurities and damaging factors. The varying fluorescence of different fiber types, such as cotton, rayon staple, wool, linen, Perlon, etc., facilitates the characterization of fiber mixtures and the sorting of mixed batches. Contamination with mineral oil can be identified from the strong fluorescent effects. The analysis lamp Ultraflex, constructed for these purposes, is described.

FIBERS E 1

Quantitative separation of wool and chemical fibers based on cellulose.

M. Kehren. *Z. ges. Textil-Ind. 57, No. 19:* 1226-1234 (1955); *in German.* Through *BCIRA 35:* 781 (1955).

The specification laid down by the West-German Testing Stations for the quantitative determination of wool constituents in viscose spun rayon and cuprammonium spun rayon mixtures (destruction of the wool by boiling with 2.5 vol. per cent potassium hydroxide) is described and details are given of the modified potassium hydroxide method (0.3N potassium hydroxide = 1.65 per cent). This method is preferable to the less accurate acid method and its modified version.

Measurement of crimp in single fibers.

A. Brown (Carbide and Carbon Chemicals Co.). *Textile Research J. 25:* 969-976 (December, 1955).

A technique is described for the measurement of the crimp content of fibers that is particularly applicable to fibers of high crimp content. The technique is adaptable to the measurement of the permanence to stretch of the crimp, and this permanence is correlated with the permanence to the stretches induced in fiber processing. 4 references.

Staple diagram.

R. Hirako (Tokyo University). *J. Textile Machinery Soc. Japan 1:* 44-46 (November, 1955); *in English.*

This article describes a method of collecting test samples for drawing up staple diagrams and shows a geometric analysis for getting the ratio of cut fibers and average staple length with the Baer sorter.

Apparatus used for longitudinal vibration experiments in textile fibers over the range of frequency from subsonic to supersonic.

K. Fujino, H. Kawai, T. Horino and K. Miyamoto (Kyoto University). *J. Textile Machinery Soc. Japan 1:* 32-39 (November, 1955); *in English.*

Apparatus available for measuring the dynamic mechanical properties of textile fibers over a range of frequency from subsonic to supersonic are described. Some findings on nylon-6 fiber are presented briefly. 17 references.

YARNS E 2

Measurement and analysis of the irregularity of jute yarn.

B. L. Banerjee and M. K. Sen. *J. Textile Inst. 46:* P742-P755 (November, 1955).

Fundamental causes of irregularity, the function of oil, various methods of analysis, working principle and description of the instruments, calibration of instruments, comparison of results obtained by different instruments and methods, weighing method, and irregularity index for routine control. 14 references.

Methods of measuring and evaluating yarn irregularity.

C. Nozaki and A. Aino. *J. Textile Machinery Soc. Japan 1:* 24-31 (November, 1955); *in English.*

A review. 63 references.

Statistical methods for evaluating yarn irregularity.

H. J. Henning. *Melliand Textilber. 36, No. 7:* 702-705; *No. 8:* 785-786; *No. 9:* 894-895; *No. 10:* 991-996 (1955); *in German.* Through *BCIRA 35:* 783 (1955).

Yarn evenness measurements should take into account fiber length and surface area.

J. Duerst. *Textile Ind. 120:* 106-107 (January, 1956).

American and Egyptian cotton yarns are compared as to variation registered on modern evenness testing machines. It is shown that shorter American cottons always register perceptibly higher irregularity than Egyptian yarns.

Development of procedures for measuring the regularity of the apparent diameter of yarn.

A. Barella. *Ingen. Text. 22, No. 113:* 106-115 (March/April. 1955); *in Spanish.* Through *BCIRA 35:* 643 (1955).

The regularity of the apparent yarn diameter can be measured by two procedures: (a) direct measurement of the diameter of the yarn projected on to a screen at a sufficiently high magnification (the Barella regularimeter is based on this

technique), and (b) by intercepting the variations in the shadow, cast by the yarn, by means of a photo- or thermo-electric element which transforms them into electric-current variations. Methods based on these two procedures are reviewed. 32 references.

FABRICS E 3

Tester of color fastness against rubbing.

K. Fujino (Kyoto University). *J. Textile Machinery Soc. Japan 1:* 70 (November, 1955); *in English.*

The tester is described and illustrated.

The pilling problem in the new man-made fibers.

Bull. Inst. Textile France No. 54: 65-71 (June, 1955); *in French.* Through *BCIRA 35:* 784 (1955).

Literature data referring to pilling phenomena, apparatus for measuring the degree of pilling, and laboratory methods for its reduction are reviewed. Some of the treatments for reducing pilling, when applied in excess, involve the risk of rendering the fabric too stiff and harsh.

Evaluation of the Boor-Quartermaster snag tester for coated fabrics and plastic films.

F. W. Reinhart, C. Brown, L. Boor and J. J. Lamb. *ASTM Bull. No. 210:* 50-59 (December, 1955).

Snag resistance is determined by three observations: angle of elevation of the needle for tear, energy to tear, and type of tear. The method is recommended for testing coated fabrics and plastic films, but not uncoated fabrics. Photographs, diagrams, tables.

Determination of the pilling tendency of woven fabrics.

E. I. du Pont de Nemours and Co., Inc. Wilmington, Del., 1955. 12 p. Bulletin X-46. Free.

Textiles: accelerated weathering versus outdoor exposure tests.

J. C. McGrath. U. S. Air Force. Wright-Patterson Air Force Base, Dayton, Ohio: Wright Air Development Center, October 1950. 49 p. Order from Office of Technical Services, Washington 25, D. C. $1.25. PB 111 761.

The G.C.M.I. friction tester—an instrument for measuring coefficients of friction of paperboard.

J. G. Turk and R. Maxson. *Tappi 38, No. 5:* 161A (1955). Through *BCIRA 35:* 576 (1955).

The paperboard specimen is placed (suitably loaded) on a hydraulically-operated sliding platform. When the latter moves, movement of the specimen is resisted by a metal beam, the deflection of which is measured with a dial micrometer. From the force corresponding to this deflection and the known load on the specimen, the coefficient of friction is calculated.

Testing of the heat-retention capacity of textiles.

G. Kokojan. *Textil 9, No. 11:* 341-343 (1954); *in Czech.* Through *BCIRA 35:* 575 (1955).

Three methods for testing the heat retention capacity of textile materials are described: the cooling method, the plate method (which measures mainly the heat conductivity of a material), and the constant-heat method. In the last method (giving best results), the apparatus is similar to that used in the cooling method, but contains two thermometers, one of which acts as a contact thermometer and automatically switches on and off—a thermo-element in order to maintain a constant temperature inside the apparatus. A particular advantage of this method consists in the possibility of carrying out the determination in a current of air at varying moisture contents.

OTHER E 4

A laboratory-scale tumbler-type washing machine.

D. G. Stevenson. *J. Textile Inst. 46:* T677-T683 (November, 1955).

A new machine, for the laboratory evaluation of detergents, achieving a far closer approximation to conditions in a full-size laundry machine than possible with previous machines, is described. The theory of the machine and some results are discussed. 9 references.

Measurement of the needle heat generated during the sewing of wool and wool-nylon fabrics.

E. B. Frederick and W. Zagieboylo (Quartermaster Research and Development Center). *Textile Research J. 25:* 1025-1029 (December, 1955).

A procedure for measuring the temperatures reached by sewing-machine needles during high-speed sewing is presented along with a quantitative evaluation of the effectiveness of several sewing finishes in reducing needle heat. It is shown that the use of sewing finishes on fabrics made of blends of nylon and wool can effectively reduce

needle temperatures substantially below the melting point of nylon and thus prevent needle encrustation during production sewing of these fabrics.

INDUSTRIAL ENGINEERING F

Automation for the textile industry.

S. Oglesby, Jr. (Southern Research Institute). *Bull. Southern Research Inst. 8, No. 3:* 12-16 (1955).

Possibilities for automation in yarn production are discussed. Mention is made of work at Southern Research Institute on a continuous automatic yarn-making process with electrostatic collection and alignment of fibers with ring electrodes, followed by "free end" spinning.

One-block-building design for rayon staple spinning mill.

G. Takamasa (Ogaki Spinning Mill, Toho Rayon Co. Ltd). *J. Textile Machinery Soc. Japan 1:* 11-15 (November, 1955); *in English.*

Building construction and machinery installation are described. Photographs and diagrams.

Modern mill controls in the management of production, quality, waste and maintenance.

N. L. Enrick. New York: Rayon Publishing Corp., 1956. 28 p. $2.00.

Collection of a series of articles appearing during 1955 in *Modern Textiles Magazine.* See *TTD 12:* 78, 167, 218, 268, 318, 361 and 500 (1955).

Performance sampling in work measurement.

R. M. Barnes and R. B. Andrews. Los Angeles: University of California, 1955. 58 p.

Performance sampling is a special refinement, developed by the authors, of a technique generally known as work sampling or ratio-delay studies, to determine by means of so-called "snap-reading" the amount of working time and idle time involved in repetitive manual work tasks. The advantages sought are greater accuracy with less total observation time than under usually artificial conditions of conventional time studies. The conclusions indicate that work sampling provides a valuable tool for measuring work. In textile processing, performance sampling would apply to machine interference, ends down, and loom stop studies.

Work measurement in textile mills.

L. Allen. *Textile Wkly. 55:* 1660-1662 (November 25, 1955).

General principles of time study, with particular emphasis on relaxation and fatigue allowances, are discussed.

WASTE DISPOSAL F 2

Treatment of wool scouring wastes with colloidal bentonite.

W. Fong and H. P. Lundgren. *Textile Research J. 25:* 994-1000 (December, 1955).

Results are presented of a laboratory-scale study to determine the effectiveness of various coagulants as supplementary additives in the conventional acid cracking of wool scouring wastes. It was observed that a dispersible-type bentonite produces a marked improvement in the extent of clarification of the waste effluent. The treatment involves first acidifying the scouring wastes with sulfuric acid to a pH level between 3 and 4 and then adding the required amount of bentonite as an aqueous dispersion. The amount of bentonite required depends upon the grease and suint content of the waste. A bentonite concentration of between 0.1 and 0.5% is generally sufficient. As an example, treatment of a standard waste with acid and bentonite removed as much as 96% of the grease, compared with removal of 67% with acid alone. The chemical oxygen demand was reduced by approximately 60% by the combination treatment, compared with 33% reduction with acid alone. 7 references.

QUALITY CONTROL F 3

Textile quality analysis.

C. C. Wilson (West Point Manufacturing Co.). *Ind. Quality Control 12:* 14-18 (December, 1955).

General aspects of variation analysis in carding and spinning.

Quality control methods for two related variables.

J. E. Jackson (Eastman Kodak Co.). *Ind. Quality Control 12:* 4-8 (January, 1956).

Control problems are discussed for the following three types of conditions: (1) variables with equal variances, (2) variables with unequal variances, and (3) variables correlated. Although the discussion is in terms of chemical illustrations, the treatment can be readily transferred to textile processing phenomena. 8 references.

Application of quality control techniques in determining work assignments and standards.

S. Barkin (Textile Workers Union of America, CIO). *Ind. Quality Control 12:* 8-13 (December, 1955).

The union viewpoint.

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

FIBERS A

NATURAL FIBERS A 1

Process for separating fibrous vegetable materials into pith and fiber portions.

P. M. Horton and A. G. Keller (to Louisiana State University). USP 2 729 856 and 2 729 858, January 10, 1956.

YARN PRODUCTION B

Process and device for converting a continuous tow of artificial filaments into a sliver comprising staple lengths.

I. F. Stewart and J. B. Seed (Imperial Chemical Industries Ltd). BP 730 218, May 18, 1955. Through *BCIRA 35:* 764 (1955).

OPENING, PICKING, FIBER PREPARATION B 1

Means for preventing malfunctioning of automatic fiber blending system.

W. F. Leineweber, Jr. (to W. D. Dodenhoff Co., Inc.). USP 2 727 279, December 20, 1955.

Pressure-applying mechanism for lap winding machine.

G. Smith (to Whitin Machine Works). USP 2 728 531, December 27, 1955.

Machine for making resilient filter elements and batts.

J. B. Sebok and F. Sebok (to Houdaille-Hershey Corp.). USP 2 728 953, January 3, 1956.

CARDING AND COMBING B 2

Single roller card for the conversion of a picker lap into a set of slivers.

L. Schorsch (to Neue Baumwoll Spinnerei und Weberei Hof). BP 730 543, May 25, 1955. Through *BCIRA 35:* 766 (1955).

Sliver-coiling apparatus for carding engines.

W. H. Watson, J. Osbaldeston and L. Buckley (to T.M.M. (Research) Ltd). USP 2 728 113, December 27, 1955.

DRAWING AND ROVING B 3

Roller weighting mechanism of a high-draft system.

Estirajes Balmes S. A. (Spain). BP 730 041, May 18, 1955. Through *BCIRA 35:* 767 (1955).

Endless belt drafting mechanisms.

J. M. S. Casanovas. BP 730 063, May 18, 1955. Through *BCIRA 35:* 767 (1955).

Means for ensuring that a regulated length of sliver is fed into a coiler can.

W. Meredith and J. I. Booth. BP 730 662, May 25, 1955. Through *BCIRA 35:* 767 (1955).

Sliver coiling apparatus (stationary can).

C. Warrington (to Tweedales and Smalley (1920) Ltd). BP 730 691, May 25, 1955. Through *BCIRA 35:* 767 (1955).

Top roll.

E. P. Waite (to Cole Engineering Corp.). USP 2 727 280, December 20, 1955.

Mechanism for simultaneous transverse adjustment of bottom back roll bearings in a drafting machine.

W. W. Werth and W. E. McFarland (to Whitin Machine Works). USP 2 728 111, December 27, 1955.

Gill drawing frame.

R. C. Berker. USP 2 728 112, December 27, 1955.

Drafting apparatus with multiple porcupines.

W. Holdsworth (to Holdsworth Manufactur-

ing Co., Inc.). USP 2 728 954, January 3, 1956.

Clearer for the top drawing rollers of a spinning machine.

E. F. Rose. USP 2 728 955, January 3, 1956.

Sliver drafter evener.

D. E. Cushing and H. Cushing. USP 2 729 857, January 10, 1956.

Drafting mechanism.

J. Noguera (to Casablancas High Draft Co. Ltd). USP 2 729 859, January 10, 1956.

SPINNING, WINDING, TWISTING B 4

Flyers.

Crefelder Baumwoll Spinnerei (Germany). BP 730 254, May 18, 1955. Through *BCIRA 35:* 768 (1955).

A high-speed flyer which dispenses with the bottom ring.

J. B. Jowett (to Fairbairn Lawson Combe Barbour Ltd). BP 730 400, May 25, 1955. Through *BCIRA 35:* 768 (1955).

Coiling textile threads.

Societe Rhodiaceta (France). BP 730 485, May 25, 1955. Through *BCIRA 35:* 765 (1955).

Bobbin with replaceable end plugs for use with different sizes of spindle.

A. J. Compton and E. M. Wilkins. BP 730 542, May 25, 1955. Through *BCIRA 35:* 768 (1955).

Means for varying the drive of an uptwister for cone winding.

A. Davenport (to Ernest Scragg and Sons Ltd). BP 730 544, May 25, 1955. Through *BCIRA 35:* 768 (1955).

Stop-motion for spinning or like machine.

J. R. Bee (to Fairbairn Lawson Combe Barbour Ltd). BP 730 666, May 25, 1955. Through *BCIRA 35:* 768 (1955).

Twisting and plying spindle balloon control.

A. W. Vibber. USP 2 727 353, December 20, 1955.

Expandable mandrel for use on winding machines.

V. G. Van Colle and T. Fishwick (England). USP 2 727 700, December 20, 1955.

Twisting spindle balloon control.

A. W. Vibber. USP 2 728 185, December 27, 1955; USP 2 729 932, January 10, 1956.

Method of and apparatus for forming precision wound yarn packages.

R. J. Clarkson (to United States Rubber Co.). USP 2 729 051, January 3, 1956.

Twisting spindle balloon control.

A. W. Vibber. USP 2 729 052, January 3, 1956.

Reversible double-flange traveler ring.

V. Lindner (to Lenkotex Co.). USP 2 729 053, January 3, 1956.

Spinning rolls composed of an oil-resistant synthetic rubber composition containing an anti-licking surface active agent.

M. Balkin and D. G. Turner (to George Angus and Co. Ltd). USP 2 729 860, January 10, 1956.

YARNS B 5

Production of a nylon crepe yarn.

T. H. Potter and A. A. Aston (to British Nylon Spinners Ltd). BP 730 498, May 25, 1955. Through *BCIRA 35:* 769 (1955).

Apparatus for and method of preparing textile strands by twisting, twining, wrapping and covering.

F. Honig. USP 2 729 050, January 3, 1956.

FABRIC PRODUCTION C

Electrical device for stamping a mark on a traveling fabric or warp.

Gebruder Sucker GmbH (Germany). BP 730 556, May 25, 1955. Through *BCIRA 35:* 771 (1955).

Shuttle lock in device for making nets.

L. A. Ederer (to Linen Thread Co., Inc.). USP 2 727 425, December 20, 1955.

Web winding.

F. C. Bower and R. J. Jacobs (to Black-Clawson Co.). USP 2 728 532, December 27, 1955.

WARPING, SLASHING, YARN PREPARATION C 1

Hydraulic drive for warping machine.

K. Liebrandt (Germany). BP 730 282, May 18, 1955. Through *BCIRA 35:* 771 (1955).

Hank swift.

F. Ridgway (to Arundel, Coulthard and Co. Ltd). BP 730 330, May 18, 1955. Through *BCIRA 35:* 771 (1955).

Process of sizing synthetic yarn with hydrolyzed polyalkyl acrylates.

G. R. Barrett (to Monsanto Chemical Co.). USP 2 727 835, December 20, 1955.

Individual drive and selector for warping machines.

A. J. Luchansky (to Progressive Specialties). USP 2 728 130, December 27, 1955.

Adjustable eyeboard for warping.

R. R. Barnes, J. F. Keith, and C. C. Robinson, Jr. (to American Enka Corp.). USP 2 728 131, December 27, 1955.

Axminster setting frame.

E. H. Shattuck and J. V. Curran, Jr. (to Alexander Smith, Inc.). USP 2 728 132, December 27, 1955.

Winding apparatus with automatic bobbin-change.

W. Siegenthaler (to Maschinenfabrik Scharer). USP 2 728 528, December 27, 1955.

Yarn tail disposal device for automatic bobbin winding machines.

J. W. May (to Deering Milliken Research Corp.). USP 2 729 398, January 3, 1956.

Traverse cam mechanism for winding machines.

E. Stammwitz (Germany). USP 2 729 399, January 3, 1956.

WEAVING C 2

Warp stop motions for looms.

E. Seaton. BP 730 047, May 18, 1955. Through *BCIRA 35:* 772 (1955).

Shuttle tongue.

F. Greenwood and J. Greenwood (to Greenwood and Co. (Todmorden) Ltd). BP 730 071, May 18, 1955. Through *BCIRA 35:* 771 (1955).

Pattern card control means for jacquards.

A. Firth (to J. T. Hardaker Ltd). BP 730 317, May 18, 1955. Through *BCIRA 35:* 772 (1955).

Weft cutting mechanisms.

R. Hrdina (Czechoslovakia). BP 730 551, May 25, 1955. Through *BCIRA 35:* 772 (1955).

Loom control attachment.

E. C. Alix. USP 2 722 241, November 1, 1955.

Dobby loom and method of weaving.

A. Widmer (to Gebr. Staubli and Co.). USP 2 727 538, December 20, 1955.

Loom replenishing means.

E. C. Nichols (to Draper Corp.). USP 2 727 539, December 20, 1955.

Circular loom.

F. F. Polnauer (to Rototex Research Corp.). USP 2 728 357, December 27, 1955.

Method of weaving wire cloth.

W. A. Kools. USP 2 728 358, December 27, 1955.

Thread clamp for looms.

E. Pfarrwaller (to Sulzer Freres, Soc. anon.). USP 2 728 359, December 27, 1955.

A picker assembly for the picker stick of an underpick loom.

H. Hargreaves (England). USP 2 728 360, December 27, 1955.

Method of weaving pile fabrics.

F. P. Groat (to Magee Carpet Co.). USP 2 729 246, January 3, 1956.

Shuttle spring.

F. E. O'Neil (to Draper Corp.). USP 2 729 247, January 3, 1956.

Apparatus for automatically removing lint from above and below the warp of textile looms.

C. D. Miller and F. N. Becker (to American Monorail Co.). USP 2 729 845, January 10, 1956.

Heddle frame.

V. C. Hassold (to Steel Heddle Manufacturing Co.). USP 2 730 137, January 10, 1956.

Shuttle motion in a narrow fabric loom.

A. Schiappa. USP 2 730 138, January 10, 1956.

Temple for looms.

T. Ryffel (Switzerland). USP 2 730 139, January 10, 1956.

Stopping device in double shuttle loom.

F. A. Lovshin, A. J. Dufourd and R. T. Korolyshun (to Sidney Blumenthal and Co.,

Inc.). USP 2 730 140, January 10, 1956.

KNITTING C 3

Circular knitting machine.

G. D. Dowell (to Hanes Hosiery Mills Co.). USP 2 727 373, December 20, 1955.

Knitting machine.

F. R. Page (to Scott and Williams, Inc.). USP 2 727 374, December 20, 1955.

Tuck and wrap circular knitting apparatus.

F. K. Stevens and G. L. Davis (to Piedmont Hosiery Mills, Inc.). USP 2 728 210, December 27, 1955.

Needle-moving mechanism for knitting machines.

W. W. Lenkeit and J. Biggel (Germany). USP 2 729 081, January 3, 1956.

Automatic take-up means for circular knitting machines.

J. F. Tew (to Scott and Williams, Inc.). USP 2 729 082, January 3, 1956.

FABRICS C 4

Tape for zip fasteners.

J. R. Lilley (to Narrow Fabrics (Lilleys) Ltd). BP 730 184, May 18, 1955. Through *BCIRA 35:* 772 (1955).

Non-woven fabric of randomly distributed fiber impregnated with a solution of sodium carboxymethylcellulose.

G. M. Schroder (to Steralon Process International Inc.). BP 730 251, May 18, 1955. Through *BCIRA 35:* 766 (1955).

Manufacture of non-woven fabrics.

N. V. Koninklijke Vereenigde Tapijtfabrieken (Netherlands). BP 730 269, May 18, 1955. Through *BCIRA 35:* 766 (1955).

Corded or ribbed fabrics.

C. E. Neisler, Jr. (to Neisler Mills, Inc.). USP 2 728 361, December 27, 1955.

Apparatus for making mineral wool felt.

R. M. Downey (to U. S. Gypsum Co.). USP 2 729 861, January 10, 1956.

FINISHING AND CHEMICAL PROCESSING D

Tension control for textile fabric finishing machines.

P. Cook (to Cook-P. and N. Machine Co., Inc.). USP 2 727 378, December 20, 1955.

Finishing apparatus for heating web material by contact with molten metal.

E. Farnworth and G. H. Wood, Jr. (to Aspinook Corp.). USP 2 728 567, December 27, 1955.

Device for stretching superpolyamide and superpolyurethane type yarns.

P. Kummel (to Inventa AG). USP 2 728 973, January 3, 1956.

CHEMICAL PROCESSES D 1

Laminated fabrics.

M. V. Forward and S. Shaw (to British Nylon Spinners Ltd). BP 730 042, May 18, 1955. Through *BCIRA 35:* 780 (1955).

Artificial leather.

H. Eberle and O. Saladin (Germany). BP 730 221, May 18, 1955. Through *BCIRA 35:* 780 (1955).

Rubberized fabric.

M. Sabner. BP 730 714, May 25, 1955. Through *BCIRA 35:* 780 (1955).

Thread manufacturing reel having liquid applying and liquid removing means.

H. A. Kuljian. USP 2 727 381, December 20, 1955.

Bleaching of polyamides.

A. G. Lutgerhorst (to N. V. Onderzoekingsinstituut Research). USP 2 727 804, December 20, 1955.

Textile lubricants.

M. Duke, F. Fortess and C. Hohing, Jr. (to Celanese Corp.). USP 2 727 860, December 20, 1955.

Stabilization treatment of viscose rayon with alpha-hydroxyadipaldehyde.

J. P. Dosier (to American Enka Corp.). USP 2 728 628, December 27, 1955.

Process for the liquid aftertreatment of a sheet of spaced separate parallel synthetic threads.

B. J. Blomberg (to American Enka Corp.). USP 2 728 629, December 27, 1955.

Process for the production of crinkled polyacrylonitrile yarns.

N. Drisch and P. Herrbach (to Textile & Chemical Research Co. Ltd). USP 2 728 631, December 27, 1955.

Aqueous phosphate stabilized titanium solution for flame-resistance.

D. Duane (to National Lead Co.). USP 2 728 680, December 27, 1955.

Flame retarding solution and treatment.

H. H. Beacham and I. M. Panik (to National Lead Co.). USP 2 728 691, December 27, 1955.

Method of preventing shrinkage of wool.

F. L. Dennett (to Dow Corning Corp.). USP 2 728 692, December 27, 1955.

Method and apparatus for coating fibers.

W. W. Drummond and G. E. Smock (to Owens-Corning Fiberglas Corp.). USP 2 728 972, January 3, 1956.

Tension control means in fabric treating apparatus.

F. B. Morrill and E. C. Rust, Jr. (to James Hunter Machine Co.). USP 2 729 446, January 3, 1956.

Process of making alkali-insoluble cellulose glycolic acid ether fabric.

L. Balassa and H. A. Christoph. USP 2 729 535, January 3, 1956.

Open width wet processing apparatus and process.

J. B. Lasley (to Springs Cotton Mills, Inc.). USP 2 729 537, January 3, 1956.

Method of dry cleaning fabric and simultaneously rendering the same antistatic.

R. B. Trusler (to Davies-Young Soap Co.). USP 2 729 576, January 3, 1956.

Method of imparting antistatic properties to textile materials.

O. C. Bacon and L. E. Hughes (to E. I. du Pont de Nemours and Co.). USP 2 729 577, January 3, 1956.

Method for making unwoven glass fabrics.

P. Modigliani (to Johns-Manville Corp.). USP 2 729 582, January 3, 1956.

Treating vegetable fibrous material with chlorine gas.

F. G. L. Becker (to Cellulose Development Corp., Ltd). USP 2 730 426, January 10, 1956.

Shrinkage control of cellulosic and wool textiles with diglycidyl ether compounds.

T. J. Suen (to American Cyanamid Co.). USP 2 730 427, January 10, 1956.

Method and composition for washing and bleaching fibrous materials.

K. Lindner (to Tepha GmbH). USP 2 730 428, January 10, 1956.

Continuous process for the production of plastic resin coated glass fibers.

C. C. Swann. USP 2 730 455, January 10, 1956.

Antistatic treatment of textile yarns.

P. A. Winsor (to Shell Development Co.). USP 2 730 464, January 10, 1956.

DYEING AND PRINTING D 2

Processes of dyeing materials with inorganic metallic compounds.

P. F. Crosland (to Crosland and Pickstone Ltd). BP 730 601, May 25, 1955. Through *BCIRA 35:* 779 (1955).

Process to improve the suppleness and affinity for dyes of slivers, yarns or fabrics of glass filaments.

Soc. anon. des Manufactures des Glaces et Produits Chimiques de Saint-Gobain, Chauny et Cirey (France). BP 730 713, May 25, 1955. Through *BCIRA 35:* 780 (1955).

Apparatus for the treatment of textile materials at elevated temperatures.

B. Steverlynck (to Groeninghe Ververij PVBA). USP Reissue 24 109, January 10, 1956.

Process of dyeing polyethylene terephthalate fiber.

O. S. Larson (to E. I. du Pont de Nemours and Co.). USP 2 727 803, December 20, 1955.

Process of dyeing acrylonitrile textile by cuprous ion technique.

F. W. Glaze, Jr. and S. B. Speck (to E. I. du Pont de Nemours and Co.). USP 2 729 533, January 3, 1956.

MECHANICAL PROCESSES D 3

Continuous method of treating strip fabric to remove charred vegetable matter.

W. N. Hadley (to Parks and Woolson Machine Co.). USP 2 730 113, January 10, 1956.

DRYING D 4

Tentering and drying apparatus.

B. Kawaguchi. BP 730, 440, May 25, 1955. Through *BCIRA 35:* 781 (1955).

TEXTILE TECHNOLOGY DIGEST

VOLUME 13 MARCH, 1956 NUMBER 3

ABSTRACTS

FIBERS A

NATURAL FIBERS A 1

Certain physical properties of selected samples of chemically modified cottons.

J. N. Grant (Southern Regional Research Laboratory). *Textile Research J. 26:* 74-80 (January, 1956).

Measurements are given on certain physical properties of fibers and yarns for cottons which were chemically modified by mercerization, ethylamine decrystallization, aminization, carboxymethylation, acetylation, and cyanoethylation. The changes in physical properties are shown to be affected by the type of modification, the extent of reaction, and the tensional forces on the yarns during the treatment. A spread in the per cent change was found when untreated cottons with their natural noncellulosic constituents were chemically treated under controlled conditions. 22 references.

The properties of cotton reacted with beta-propiolactone.

R. M. Reinhardt, J. D. Reid, and G. C. Daul (Southern Regional Research Laboratory). *Textile Research J. 26:* 1-9 (January, 1956).

A number of the textile and chemical properties of cotton reacted with beta-propiolactone have been investigated and are reported. Differences in the properties of the products of the reflux and of the alkali methods of treatment are shown. Reaction of cotton with beta-propiolactone yields a cellulose derivative with a bound graft polymer. The results of this unusual reaction are shown by optical means with microscopic cross sections and electron micrographs, by changes in X-ray diffraction patterns, by influence on textile properties, by chemical effects such as saponification to yield carboxyethylcellulose, and by the production of unsaturation in the cellulose derivative. 19 references.

The relation of the non-cellulosic constituents of flax fiber to its spinning quality.

I. F. Couchman. *J. Textile Inst. 46:* T742-T758 (December, 1955).

As the nature and manner of association of the non-cellulosic constituents in flax fiber are probably related to the fiber properties and spinning quality, the composition of fractions soluble in water and various concentrations of sodium hydroxide have been compared. There were no fundamental differences between the components of each soluble fraction, but the amounts of materials present varied with different qualities of fiber, the variations being most marked in the more easily soluble fractions. 16 references.

The breaking strength of twisted bundles of jute fiber and its relation to spinning quality.

B. K. Chakrabarti. *Textile Research J. 26:* 17-23 (January, 1956).

In this paper the author outlines a technique which conceivably might be applied to the prediction of strength of yarns composed of fibers other than jute. He shows that by means of a comparatively few tests of the breaking strength of jute fibers as much information with regard to the strength of the yarns can be obtained as from the simultaneous consideration of a number of other fiber characteristics. 10 references.

The relation between wool felting and single-fiber properties.

A. K. van der Vegt and G. J. Schuringa (Centraal Laboratorium T.N.O., Delft, Holland). *Textile Research J. 26:* 9-16 (January, 1956).

The relation between the rate of felting of wool yarns as a function of the applied forces and the frictional and elastic properties of the single fibers was investigated. One series of experiments was performed on a number of yarns in which the frictional properties of the fibers were modified to various degrees by chemical treatments; in another series the fiber stiffness was systematically varied by applying various aqueous solutions. The results of the experiments show that when the force affecting the fibers is smaller than the with-scale frictional resistance, no shrinkage occurs; when it attains a higher value, shrinkage of the yarn per time affected is proportional to the applied force minus the with-scale kinetic friction and inversely proportional to the Young's modulus of the fibers; when the force exceeds the antiscale friction as well, the shrinkage becomes more or less independent of the force. 16 references.

MAN-MADE FIBERS A 2

Man-made fibers data sheets: polyacrylonitrile fibers.

P. A. Koch. *Modern Textiles Mag. 37:* 46-54 (January, 1956).

Trade names, development, manufacture, properties, products, applications, etc. Table of acrylic fibers. 105 references.

Spun-dyed viscose rayon staple.

Courtaulds Ltd. *Textile Merc. 134:* 154-156 (January 27, 1956).

Uses, properties and processing of Fibro-Duracol, spun-dyed viscose rayon staple.

Vicara.

Modern Textiles Mag. 37: 57-63, 69 (January, 1956).

Manufacture and properties, by G. L. Walker, p. 57-58, 61; *Woven fabrics,* by A. Greenfield, p. 59, 69; *Processing and dyeing,* by L. Billings, p. 60-61; *Advertising and promotion,* by R. H. Stinnette, p. 62-63. 7 references.

YARN PRODUCTION B

Spinning nylon carpet yarns on the cotton system.

E. I. du Pont de Nemours and Co., Inc. Wilmington, January, 1956. 3 p. Technical Information Bulletin N-39.

Polyamide- and polyester-fibers in worsted spinning.

H. Ott. *Textil-Praxis (English ed.) No. 4:* 145-148 (November, 1955).

Processing hints to worsted spinners of Perlon and Diolen.

How to process Dacron-cotton blends.

Textile World 106: 105-106 (February, 1956).

A blend of 65% Dacron and 35% cotton gives a good balance of price and performance. For successful processing lubricate Dacron staple that will be subjected to high drafts in roving and spinning, blend during breaker drawing, and avoid fiber stretching in spinning.

OPENING, PICKING, FIBER PREPARATION B 1

Mill test procedures. Part 1. Mill testing for opening and picking.

N. L. Enrick. *Modern Textiles Mag. 37:* 34, 37-38 (January, 1956).

This first article in a series covers the test procedures applicable in opening and picking, including for each the purpose, sampling, frequencies, and test results evaluation. This series is designed as a sequel to two prior series on *Quality control through statistical methods* and *Modern mill controls.*

Improvement of fiber mixtures by means of the automatic Rieter blender.

F. Freysch. *Textielwezen 11, No. 10:* 27-29 (1955); *in French.* Through *BCIRA 36:* 16 (1956).

Constructional details and mechanism of the Rieter opener-blender are described and illustrated.

CARDING AND COMBING B 2

Card-flat grinding for lower-cost, better sliver.

A. L. Landau. *Textile World 106:* 98-99, 194-196 (February, 1956).

This article tells why flats require proper care and how to grind them properly.

The effect of material feeding on the regularity of the card web.

G. Liebig. *Z. ges. Textil-Ind. 57, No. 20:* 1302-1306 (1955); *in German.* Through *BCIRA 35:* 800 (1955).

Reference is made to automatic weighing devices and their mechanisms, web formation without visible grooves, the effect of feeding devices on the material fed, the equalizing action of the taker-in, and the action of the feeding devices on the second breaker with ribbon feed.

The universal card-spinning machine (Franz Muller system).

F. Müller. *Melliand Textilber. 36, No. 10:* 1059-1063 (1955); *in German.* Through *BCIRA 35:* 800 (1955).

The advantages claimed for the new (roller and clearer) construction, described and illustrated, comprise: increase of production, improvement of quality, reduction of total costs, 50 per cent savings of space, power, investment costs, and operatives, and appreciable reduction of waste.

DRAWING AND ROVING B 3

Kepa drawing system in the cotton spinning mill.

O. Reinhardt. *Textil-Praxis (English ed.) No. 4:* 149-153 (November, 1955).

The Kepa high-draft drawing system is discussed. Diagrams and photographs.

The mill of today. Part 43. Fundamentals of drafting. (Section 1).

R. Z. Walker. *Textile Bull. 82:* 70-72 (January, 1956).

Roving frame adjustment and its effect on the roving.

W. Wegener and H. E. Braune. *Melliand Textilber. 36, No. 10:* 982-988 (1955); *in German.* Through *BCIRA 35:* 801 (1955).

It is shown that, at an optimum adjustment of the roving frame, deviations of the order of 2 per cent in the mean count are obtained. Continuous control of the count variations in the individual batches by means of suitable devices or by hand-sorting is recommended.

On count variations.

O. John. *Textil-Praxis 10, No. 10:* 1001-1002 (1955); *in German.* Through *BCIRA 36:* 17 (1956).

The count differences in the yarn of the front and back rows of bobbins on the speed frame are attributed to a "false" draft occurring between the drawing passage and bobbin (in the yarn length from (1) the presser to the flyer top and (2) the flyer top to the rollers). The "false" draft between flyer top and rollers can be eliminated by a modification of the flyer top (developed by the author and patented by the Crefelder Baumwoll-Spinnerei).

SPINNING, WINDING, TWISTING B 4

New false twist machine.

Ernest Scragg and Sons Ltd. *Textile Merc. 134:* 57-58 (January 13, 1956); *Textile Wkly. 56:* 51-53 (January 6, 1956).

This new false twist machine for the production of crimped nylon and other synthetic fiber yarns telescopes five processes into one, in a continuous operation from feeder bobbin to take-off package, with a high production speed, accurate temperature and tension control of each thread and substantial economies in labor, power consumption, and floor space.

Count variation in condenser spinning.

A. Linnert (Shirley Institute). *Textile Wkly. 56:* 102-108 (January 13, 1956).

Measurement of count variation, survey on yarn from Derby doubler system, and practical steps to reduce count variation.

Critical observations on spindle drives in two-roller spinning.

R. Locker. *Z. ges. Textil-Ind. 57, No. 21:* 1362-1368 (1955); *in German.* Through *BCIRA 36:* 17 (1956).

The disadvantages of using ordinary spindle bands made from cotton yarn and the development of hook and patent cords are discussed, and reference is made to the application of continuous elastic bands in twisting tube drives and selfactor mules.

YARNS B 5

Some observations on the structure of a multi-colored yarn.

H. R. Boswell and P. P. Townend (Leeds University). *(Letter to the editor). J. Textile Inst. 46:* T778-T779 (December, 1955).

The causes of thin thread lengths in spun rayon yarns.

G. Porsche. *Textil-Praxis 10, No. 10:* 987-900 (1955); *in German.* Through *BCIRA 36:* 17 (1956).

The causes of thin sections in yarn (loss of twist, unsuitable winding machine, faults in the mixture, uneven humidity of material and workroom, faulty performance of cards, flyer frames, etc.) are discussed and measures for their prevention are suggested.

The strength of cotton and spun rayon yarns.

G. Schmalfuss. *Textil-Praxis 10, No. 10:* 991-992 (1955); *in German.* Through *BCIRA 36:* 36 (1956).

An attempt is made to show, without derivation of mathematical formulae, the origin of yarn strength, how it can be increased, how strength properties can be compared with each other, and and in what way the strength of the material can be utilized.

Taslan textured yarn.

J. T. Rivers, Jr. (E. I. du Pont de Nemours and Co.). *Mech. Eng. 78:* 7-10 (January, 1956).

The properties, uses, and processing of Taslan yarns are discussed and compared with continuous filament and spun staple yarn systems.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

The importance of squeezing pressure reduction during the slow running of warp sizing machines.

E. Michelen. *Textil-Praxis (English ed.) No. 4:* 173-177 (November, 1955).

The effect of slow running of the sizing machine on the uniformity of sizing is investigated. Experimental results show that the abrasion resistance during this period decreases by 30-40 per cent. The sizing effect can be improved by reducing the pressure of the squeezing roller. Various devices and their mechanisms are described.

Slasher sizing Dacron filament yarns.

E. I. du Pont de Nemours and Co., Inc. Wilmington, January, 1956. 4 p. Technical Information Bulletin D-61.

A summary of information on the sizing and afterwaxing of warps for broad woven fabrics.

Some properties of a homogenized sizing agent.

K. Ramaszeder. *Industrie Textile:* 743-746 (October, 1955); *in French.* Through *BCIRA 36:* 20 (1956).

Comparison is made between the properties of cooked and homogenized starch products and the advantages of the latter are pointed out. The strength of size films was found to be a criterion of their quality.

Yarn sizing.

Simon Megson, Ltd. *Textile Wkly. 56:* 54-56 (January 6, 1956).

Zymetex, a new sizing agent based on tallow, is made in both solid and liquid forms.

Comparing the merits of big-cylinder, small-cylinder and hot air slashers.

R. L. Mundhenk (West Point Foundry and Machine Co.). *Textile Bull. 81:* 88-93 (December, 1955).

New concept in filling yarn preparation: Unifil loom winder.

Universal Winding Co. *Textile Age 20:* 30-34 (February, 1956).

The Unifil loom winder is a mechanism designed and built right into the loom itself, which winds, transfers to the shuttle, strips, and returns empty quills to the winder.

WEAVING C 2

The suitability and economy of various types of weft bobbins in the weaving mill.

E. O. Hesse. *Z. ges. Textil-Ind. 57, No. 20:* 1308-1309 (1955); *in German.* Through *BCIRA 35:* 804 (1955).

The suitability of pin cops from selfacting mules and of tubular cops for use as weft bobbins for various types of yarn, and their advantages and disadvantages, are discussed.

Tensioning and braking of warp beams.

J. Baudry. *Industrie Textile:* 760-762 (October, 1955); *in French.* Through *BCIRA 36:* 22 (1956).

The device described (developed by the Société Cornu et Fils) consists of a feeler fixed at one point to the loom frame, its free arm resting on the warp threads wound on the warp beam. The feeler is drawn nearer to the warp beam axis as the warp unwinds, the tensioning device of the braking mechanism starting to operate by the action of an adjusting lever, one end of which is connected to the feeler on the loom frame and the other to the tensioning device. The apparatus makes it possible to maintain a constant warp tension and, consequently, to ensure a very uniform density over the whole length of the cloth piece.

Innovations on Verdol jacquard machines for continuous paper cards.

H. Dersen. *Melliand Textilber. 36, No. 10:* 1004-1006 (1955); *in German.* Through *BCIRA 35:* 804 (1955).

Warp protectors on fast and loose reed looms.

J. Starkie. *Textile Mfr. 82:* 25-27 (January, 1956).

When a shuttle fails to reach its box, due to some fault in the picking or shedding mechanism, provision must be made to prevent a breakage of warp when the reed moves forward with the shuttle between it and the cloth fell. Two systems are used, the fast reed warp protector, which brings the loom to a sudden stop before the lay reaches a position to cause breakage, and the loose reed warp protector, which permits the reed to move backwards under pressure from the shuttle against it, this pressure being provided by the warp tension.

A study in loom fixing. Part 4.

F. D. Herring. *Textile Bull. 82:* 74-77 (January, 1956).

Part 4 discusses jobs that are the most difficult for the average fixer: throwing the shuttle out, placing the pickers, and setting and timing the harness.

Genuine limitations of large-size shuttles in wool weaving.

K. Schwabe. *Textil-Praxis (English ed.) No. 4:* 161-166 (November, 1955).

The advantages and disadvantages of large-size shuttles in wool weaving are studied.

How to fur a shuttle.

A. J. Grunfeld. *Textile Forum 12:* 16-18 (December, 1955).

Step by step directions are given. Photographs.

Tips on weaving poplins, broadcloths, oxfords.

Textile Age 20: 50-52 (February, 1956).

Points to watch for in weaving and in processing before weaving to achieve the highest possible quality.

Yarn fatigue and weaving productivity: towards a formula for cloth set and loom settings.

N. S. Borodovskii. *Man-Made Textiles 32:* 52-54 (December, 1955; 52-54 (January, 1956).

The researches described here show that there is an endurance limit for fibers subjected to repeated stretching which bears no relationship to the strength and elongations determined by static tests. but which should be considered in relation to the stresses set up in the warp shed during the weaving process. As a consequence a mathematical basis for co-ordinating yarn quality as assessed by its endurance under repeated stressing, cloth construction and density, and loom settings, can be evolved which will result in a reduction in end-breakages and an increase in productivity. This article is based on original published work in Russian, by N. S. Borodovskii, which appeared in *Tekstil'naya Promyshlennost.*

Automatic versus Lancashire looms: a cost comparison relating to spun rayon.

P. A. Mars and D. Leech. *J. Textile Inst. 46:* P799-P812 (December, 1955).

After a discussion of the line of approach to carrying out surveys and making cost comparisons, the author explains in detail his method of calculation and then gives his results. Tables. Graphs.

A method for determining the cost of weaving.

A. Barfety. *Industrie Textile:* 747-757 (October, 1955); *in French.* Through *BCIRA 36:* 45 (1956).

In this study, the author gives a simple practical method by means of which it is possible to calculate accurately the cost per meter of the fabric, taking into account all processing stages and variable factors. Examples and diagrams are given.

KNITTING C 3

Use of step numbers as design basis.

W. Davis. *Hosiery Times 29:* 51-55 (January, 1956).

Making use of step or move numbers for new patterns suitable for every branch of knitwear manufacture.

New jacquard jersey machine.

J. B. Lancashire. *Hosiery Trade J. 63:* 66-69 (January, 1956).

High production and wide scope for patterning in surface effect and color are claimed for the jacquard circular rib machine, Mellor Bromley type 5/RLGS/24. It is offered with 30-inch needle cylinder in all normal gauges up to and including 18 x 18 needles per inch. There are 24 feeders on the machine and every second feeder incorporates a four-color striping unit, a compact overhead stand giving accommodation for 60 yarn packages, with top and bottom stop motions for each thread. Diagrams. Photographs.

Hosiery machine builder in 1955: a review of technical progress.

J. Rab. *Hosiery Times 29:* 17-24, 86-89 (January, 1956).

A progress report on developments in knitting machinery during 1955.

Moncenisio tricolor machine.

S.p.a. Officine Moncenisio. *Hosiery Trade J. 63:* 78-79 (January, 1956).

This three-feeder double cylinder machine for the manufacture of jacquard hosiery features facilities for dismantling when necessary and accessibility of the knitting elements. Instead of

using levers and rods, movements are transmitted by balls contained in flexible tubes and thus a much clearer view than usual can be obtained of the knitting actions, while providing positive movement and control.

FABRICS C 4

The design and laboratory evaluation of an improved Navy overcoat fabric.

J. J. Press. *Textile Research J. 26:* 23-31 (January, 1956).

Analysis shows the 30-oz kersey fabric used in the enlisted man's overcoat to be too heavy and warm under still-air conditions, to be inefficient in resisting wind penetration under adverse conditions, and to have limited use life because of the rate at which it becomes threadbare. New 22-oz fabrics, in melton and kersey finishes, have been engineered to incorporate improved functional characteristics. On the basis of laboratory evaluation, the 22-oz fabrics show considerable promise for wool conservation while maintaining or improving the desired functional characteristics of the 30-oz kersey. 4 references.

Design in woven structure. Part 38. Effects in sponge weaves.

D. C. Snowden. *Wool Rev. 27:* 28-29 (January, 1956).

Black specks and stains on woven cloth.

A. Agster. *Textil-Praxis (English ed.) No. 4:* 153-158 (November, 1955).

These defects in the woven fabric may be due to fragments of husk, stem, leaf and capsules, lubricating oil, and tar. Differentiation between the various spots and their origin are discussed and their characteristics are summarized in a table.

Handbook of twisting. Chapter 7. Effect of twist on appearance.

N. Truslow. *Textile Bull. 82:* 92-97 (January, 1956).

FINISHING AND CHEMICAL PROCESSING D

Effect of colloidal silica treatments on sizing and finishing characteristics of cotton yarns.

H. M. Brown, J. H. Langston, and E. A. Murray (Clemson College). *Textile Research J. 26:* 40-43 (January, 1956).

Cotton in lap form was treated with a colloidal silica compound, and together with an untreated lap was processed into 15/1, 36/1, and 50/1 yarns. Samples of these yarns were used for control, for mercerizing, for bleaching, and for dyeing. Analyses of ash content were made. In addition, other samples of the yarns were used to assess the reaction to slashing, desizing, and abrasion. In general, the presence of colloidal silica, on medium and fine carded yarns, did not affect the operations of mercerizing, bleaching, and dyeing. Yarn strength differences between treated and untreated samples were of the same order after as before each of these chemical processes. Quantitative tests (ash-content analyses) to determine the effect of these processes on the permanence of the colloidal silica on the fiber were inconclusive. 5 references.

CHEMICAL PROCESSES D 1

Textiles.

J. F. Krasny and M. Harris. *Ind. Eng. Chem. 48:* 35A-37A (January, 1956).

Chemical process industries: 1955 annual review.

One-step process for the cyanoethylation of cotton.

A. H. Gruber and N. M. Bikales (American Cyanamid Co.). *Textile Research J. 26:* 67-73 (January, 1956).

A simplified one-step process for the partial cyanoethylation of cotton yarn and stock in the package dyeing machine is described. The new feature of this process consists of mixing the required amount of caustic solution with the acrylonitrile, circulating the mixture cold until even distribution of the caustic is obtained on the cotton, and only then heating to reaction temperature. 8 references.

Improved weather resistance by acetylating vat-dyed cotton.

W. N. Berard, S. G. Gremillion, Jr., and C. F. Goldthwait (Southern Regional Research Laboratory). *Textile Research J. 26:* 81-86 (January, 1956).

Cotton has been made unusually resistant to degradation by weather by first dyeing it with certain light-stable vat dyes and following this with partial acetylation. Vat dyeing alone or partial acetylation alone do not make cotton significantly

more resistant to deterioration by sunlight than undyed fabrics, except for a few colors which do have a protective effect. However, when these two processes are combined excellent resistance to solar cesses are combined excellent resistance to solar rot-resistance of partially acetylated cotton. Data were obtained on a number of individual vat-dyed and vat-dyed and acetylated cotton materials that had been exposed to outdoor weathering. From the results of these tests, it is estimated that the combination of vat dyeing with light-fast colors and acetylating may more than double the outdoor service life compared to cotton vat dyed only, or acetylated only, with somewhat better color retention when the cotton has been dyed and acetylated. 18 references.

The cyanoethylation of cotton.

J. Compton, W. H. Martin, B. H. Word, Jr. and R. P. Barber (Institute of Textile Technology). *Textile Research J. 26:* 47-66 (January, 1956).

Methods for the cyanoethylation of cotton fiber, yarn, and fabric in laboratory and pilot plant are discussed in detail. 22 references.

A study of rayon in tufted carpeting.

L. L. Walmsley, W. S. Sollenberger and D. P. Feyler (American Viscose Corporation). *Am. Dyestuff Reptr. 45:* P30-P33 (January, 16, 1956).

Data are presented relative to the dyeing and finishing of 100% rayon and rayon blended with nylon, acetate, and wool in tufted carpeting. Factors which the dyer must consider in piece dyeing and stock dyeing with direct or vat dyestuffs are discussed along with test methods and end-use specifications. Some emphasis is placed on the necessity for dyestuff selection as related to fastness requirements, level dyeing, and suitability to withstand carpet cleaning and spot-removal techniques. Causes of warp streaks in rayon carpeting are given and methods of isolating some causes described. Data on the general use and value of soil-resist treatments and on discoloration in finished carpeting are given.

Permanent static reduction in carpets of du Pont nylon.

E. I. du Pont de Nemours and Co., Inc. Wilmington, January, 1956. 2 p. Technical Information Bulletin N-49.

A conductive latex, applied in place of regular latex, reduces static formation in nylon carpets below that of untreated wool carpets.

Reaction of cellulose with dimethylol- and monomethylolureas.

R. Steele and L. E. Giddings, Jr. (Rohm and Haas Co.). *Ind. Eng. Chem. 48:* 110-114 (January, 1956).

Dimethylol- and monomethylolurea have been studied as prototypes of urea-formaldehyde resins which are difunctional and monofunctional, respectively, with respect to cellulose. When applied to cotton and rayon fabrics with an acid catalyst, analysis and solubility determinations indicated that monomethylolurea forms chains three or four urea residues long, attached at one end to the cellulose. Dimethylolurea produces cross links that average about two urea residues long. On rayon fabric, equal quantities of the dimethylol or monomethylol product produce essentially the same degree of crease recovery. On cotton, dimethylolurea cross links are much more effective than monomethylolurea side chains. This is explained on the basis of difference in chemical accessibility in the two fibers and the resulting difference in effective resin concentration. 8 references.

Intermediate for flame-resistant polymers: reactions of tetrakis (hydroxymethyl) phosphonium chloride.

W. A. Reeves and J. D. Guthrie (Southern Regional Research Laboratory). *Ind. Eng. Chem. 48:* 64-67 (January, 1956).

The polymer-forming properties of tetrakis (hydroxymethyl) phosphonium chloride have been investigated for the purpose of finding flame-resistant resins. The crystalline compound is soluble in water and some organic solvents, and reacts with most substances known to react with aqueous formaldehyde. The polymers, usually thermosetting resins, resemble resins from formaldehyde or polyhydric alcohols in physical properties, but differ significantly in combustion characteristics. Tetrakis (hydroxymethyl) phosphonium chloride reacts with many compounds containing trivalent nitrogen. Of particular significance are the melamine and urea resins, which impart flame resistance to cellulosic fibers. Phosphorus-containing phenolic resins are readily obtained by reaction with phenols. It also reacts as an alcohol by forming polymers with anhydrides of polycarboxylic acids. 8 references.

Finishing shrinkproof woolen material.

R. Schmidt. *Textil-Praxis (English ed.) No. 4:* 183-188 (November, 1955).

A number of suggestions are made for the proper finishing of woolen fabrics so that the finished fabric will not undergo further dimensional change either in length or width.

Kier boiling.

C. Garrett (Lumsden & Mackenzie Ltd). *J. Soc. Dyers Colourists 71:* 830-839 (December, 1955).

The reasons for tendering in kiers are discussed, and the essential conditions to avoid tendering are given. Steam supply is considered, and operational control is described. The importance of fluidity control is stressed. 3 references.

Theory and practice of enzymatic desizing.

J. Voss. *Am. Dyestuff Reptr. 45:* 58-63 (January 30, 1956).

Translated from the German journal *Melliand Textilberichte 35, No. 7:* 762-764; *No. 8:* 876-880 (1954). See *TTD 12:* 62 (1955).

The chemical and physical behavior of glass fibers in water.

W. Bobeth and H. Dittmann. *Faserforsch. u. Textiltech. 6, No. 9:* 391-398 (1955); *in German.* Through *BCIRA 35:* 808 (1955).

Experiments have shown that the improved wet strength of glass yarns and fabrics brought about by cation resins is not due to an exchange of alkali ions. No satisfactory explanation can be given of the factors causing the loss of strength of wet glass yarns and fabrics as compared with individual fibers which are little affected by water.

Some experiments on the condensation of urea and formaldehyde on cellulosic materials.

J. Alvsaker and H. A. Turner (University of Manchester). *J. Soc. Dyers Colourists 71:* 797-816 (December, 1955).

Experiments have been carried out in which the drying and high-temperature treatments of viscose rayon, impregnated with urea-formaldehyde precondensates, have taken place both in ventilated and in closed vessels. In this way the condensation has been effected with different concentrations of formaldehyde vapor in the surrounding air. These variations in the post-impregnation treatments affect the following quantities—proportion of resin fixed, fastness of the resin to removal by washing, crease resistance, stiffness, tensile strength, extension at break, and water retention. The relations between conditions of treatment and corresponding changes in the properties of the treated materials are discussed. 77 references.

Textured carpets of du Pont nylon.

E. I. du Pont de Nemours and Co., Inc. Wilmington, January, 1956. 2 p. Technical Information Bulletin N-50.

Twist-setting nubby and frieze carpet yarns.

Solvent scouring of raw wool.

F. O. Howitt. *Wool Record 89:* 139-142 (January 19, 1956).

Advantages and disadvantages of a solvent scouring process developed in Australia are discussed.

Observations on American bleaching and dyeing practice.

J. K. Skelly. *J. Soc. Dyers Colourists 72:* 7-14 (January, 1956).

The applications of the established American bleaching and dyeing processes for cotton piece goods are discussed. An outline is given of the Becco, du Pont, and Mathieson continuous bleaching systems. The practical uses of the Williams unit and pad-steam dyeing ranges are indicated. Particular attention is paid to the factors influencing the advantages and limitations of each of these processes. 25 references.

Accelerated hypochlorite bleaching of cotton.

R. L. Derry (British Cotton Industry Research Assoc.). *J. Soc. Dyers Colourists 71:* 884-893 (December, 1955).

An attempt was made to determine the conditions under which warm or hot hypochlorite solutions can safely be used in cotton bleaching. It is shown that alkaline hypochlorite liquors, buffered at pH 10.5 or above, are very stable even on boiling. If the time of bleaching is reduced by a factor of 2.3 for each 10°C. rise in temperature, the quality of the bleach is maintained without appreciable increase in the extent of modification of the cellulose. 8 references.

Bleaching of nylon and nylon blends.

S. Shaw and W. S. Willson (British Nylon Spinners Ltd). *J. Soc. Dyers Colourists 71:* 857-873 (December, 1955).

The effect of chemical bleaching agents on the strength and color of all-nylon textiles, and on the tensile strength and abrasion resistance of wool-nylon, cotton-nylon, and staple viscose rayon-nylon blended fabric to give an acceptable white have been described. Removal of heat-setting discoloration from all-nylon material has been discussed, and also the use and misuse of fluorescent brightening agents. The bleaching agents selected for investigation were sodium hypochlorite, hydrogen peroxide, peracetic acid, and sodium chlorite, and details are given of recommended methods of application. 21 references.

Some aspects of present-day bleaching practice.

N. F. Crowder and W. A. S. White (Imperial Chemical Industries Ltd.). *J. Soc. Dyers Colourists 71:* 764-776 (December, 1955).

A general review is given of present-day practice for bleaching the principal textile fibers, the emphasis being mainly on cotton. Modern trends and developments are discussed, including methods of continuous bleaching and the use of sodium chlorite. Experimental results are quoted in connection with the peroxide bleaching of cotton at various pH values and the application of peroxides for combined desizing, scouring, and bleaching of rayon-staple fabrics. 43 references.

Notes on the peroxide bleach.

Textile Mfr. 82: 39-41 (January, 1956).

Nature, stability, effects of kier boiling, continuous bleaching procedure, combined chlorine and peroxide method, combined scouring and bleaching, and testing are considered. 6 references.

Developments in the use of sodium chlorite as bleaching agent.

H. W. Hundt. *SVF Fachorgan Textilveredlung 10, No. 10:* 538-543 (1955); *in German.* Through *BCIRA 36:* 27 (1956).

Two recently developed bleaching methods, which were successfully introduced in practice, are described; they are (1) the continuous chlorite bleaching process, according to the Degussa system (using an impregnating vat and a J-box) and (2) open-width chlorite bleaching on the roller, utilizing the pad-roll principle. The fabrics are padded with cold or warm chlorite solution, rolled up, and stored in a warm room for a certain length of time. Some directions are given for constructing such an installation.

The present state of bleaching in the textile industry.

W. Hundt. *Z. ges. Textil-Ind. 57, No. 21:* 1387-1394 (1955); *in German.* Through *BCIRA 36:* 27 (1956).

The development of bleaching installations since 1938 is reviewed, with reference to the junior-bleaching units of Butterworth and Wiesner-Rapp (U.S.A.), the open-width bleaching plant of the Greenville Steele Co., the Rangette of Rodney Hunt, the continuous open-width bleaching plant of Benteler, Bielefield, the continuous chlorite bleaching plant (Degussa system), and the Padroll open-width bleaching machine of the Svenska Textil Maskinfabriken, Goteborg.

Photomicrographs reveal incomplete carbonization.

Am. Textile Reptr. 70: 35, 42 (January 26, 1956).

Carbonized fabric is examined to determine the causes for remaining impurities which impair even dyeing and produce seconds.

Processes for delustering textile fibers.

E. Debus. *Textil-Praxis 10, No. 10:* 1032-1036 (1955); *in German.* Through *BCIRA 36:* 30 (1956).

Reference is made to the relevant patent literature from 1929-1943, with titles and short abstracts of the patents.

Development and state of the machines for electrostatic flocking.

F. Hesse. *Reyon Zellwolle Chemiefasern No. 10:* 697-704 (1955); *in German.* Through *BCIRA 36:* 30 (1956).

Modern machine constructions for electrostatic flocking, comprising units for the application of adhesive and flock, respectively, drying of the adhesive, and removal of excessive flock, are described and illustrated.

DYEING AND PRINTING D 2

Yarn dyeing du Pont nylon for carpets.

E. I. du Pont de Nemours and Co., Inc. Wilmington, January, 1956. 2 p. Technical Information Bulletin N-53.

Techniques for simultaneously dyeing and twist-setting carpet yarns.

Stock dyeing du Pont nylon for carpets.

E. I. du Pont de Nemours and Co., Inc. Wilmington, January, 1956. 2 p. Technical Information Bulletin N-52.

Techniques for the level dyeing of nylon staple with Capracyl dyes.

Coloring rags and waste. Part 1.

Dyer 115: 115-116 (January 20, 1956).

Coloring processes in general use for the following types of rag stock: (1) carbonized woolens; (2) uncarbonized woolens; (3) cottons; (4) rayons; (5) jutes; (6) carpeting, mats and similar floorcoverings.

The pigment padding process with indanthrene dyes as jig-padding and jig-developing.

K. Wojatschek. *Textil-Praxis (English ed.) No. 4:* 178-183 (November, 1955).

Preparation of the fabric, jig-padding and developing, oxidation, and aftertreatment of the dyeings carried out on heavy cotton drill are discussed and a practical example is given.

Control of the vat-dyeing process.

L. I. Belienkii and M. E. Kazanskaya. *Am. Dyestuff Reptr. 45:* 54-57 (January 30, 1956).

An account of the establishment of a Russian laboratory method of dyeing control. Translated from the Russian journal *Tekstilnaya Promyshlennost 14, No. 2:* 20-24 (1954). 13 references.

The pad-roll dyeing system.

C. O. Eriksson, N. Landquist, and B. Mellbin (Rydboholms AG). *J. Soc. Dyers Colourists 71:* 894-901 (December, 1955).

A brief discussion is given of the pad-roll system. The dyeing machine, comprising a padding device, an infrared heating zone, and a batching chamber in which constant atmospheric conditions can be maintained, is described. The composition of the direct dye pad solutions is discussed with special reference to dyes and addition of electrolytes, and the pre- and after-treatments of the fabrics are considered. Finally, the laboratory dyeing methods applicable to the pad-roll system are given. 2 references.

Package dyeing of woolen yarns.

Textile Recorder 73: 53-55, 58 (January, 1956).

Technical considerations which influence the choice of equipment and the technique employed are discussed.

Some observations on the continuous dyeing of cotton piece goods with particular reference to vat and soluble vat dyes.

M. R. Fox (Arnold, Hoffman and Co., Inc.). *Am. Dyestuff Reptr. 45:* P38-P40 (January 16, 1956).

Causes and corrective measures are given for faults arising in the continuous application of vat dyes to cotton piece goods. Particular emphasis is placed on dye specking and chemical-pad-control problems. The application of soluble vat dyes by continuous methods is briefly touched upon.

Versatility of water-soluble sulfur dyes.

H. Boothroyd. *Can. Textile J. 73:* 47-49 (January 27, 1956).

Economies from enclosed dye vessels.

A. L. Forrester. *Dyer 115:* 151-155 (January 20, 1956).

A method is described of assessing heat losses through vapor loss and radiation loss from open-top dye vessels. The author recommends the use of hoods, in combination with insulation of metal walls of dye vessels.

Transfer-dyeing method for Acrilan-wool blends.

W. H. Hindle (Chemstrand Corp.). *Textile World 106:* 101, 192 (February, 1956).

Acrilan-wool blends can be dyed to excellent unions in fast shades. Several classes of dyes work well when the bath contains leveling agents that decrease the rate of wool dyeing and when dye-transfer is promoted by low pH and continued boiling.

Fast shades on acetate with azoic and vat dyes.

A. J. Hall. *Skinner's Silk and Rayon Record 30:* 64-70 (January, 1956).

The Hoechst AG method for dyeing acetate fibers with fast azoic dyes so that they will satisfactorily withstand cross-dyeing in wool-acetate blends is described. Vat processes for acetate fibers patented by Celanese Corporation of America, Standfast Dyers and Printers Ltd. and Hardman and Holden are also discussed. 14 patent references.

Considerations in dyeing Acrilan.

W. H. Hindle (Chemstrand Corp.). *Am. Dyestuff Reptr. 45:* P34-P37 (January 16, 1956).

Acrilan has been designed to be dyed with eight different dyestuff classes. The application of these on textiles of 100% Acrilan and also on blends with natural or other man-made fibers is discussed. Especially important is the use of cation-active dyeing assistants to provide transfer of dye from wool to Acrilan in blends to produce piece-dyed union shades using wool dyestuffs for both fibers.

Piece dyeing and finishing of polyacrylonitrile fabrics. Part 3.

J. Müller. *Melliand Textilber. 36, No. 5:* 1023-1028 (1955); *in German.* Through *BCIRA 35:* 807 (1955).

The author discusses new findings as regards possible combinations of Indigosol and Anthrasol dyes, respectively, and gives suitable compositions for jig-dyeings. Results from experiments introducing a Thermosol process into the IF/Casella dyeing method with Anthrasol dyes are reported, reference being made to the effects obtained with intermediate steaming under pressure. Padding methods (combination of padding machine and jig) and continuous dyeing methods are also discussed and the solvent fastness of Indigosol and Anthrasol dyeings on PAN fibers is briefly examined.

The high-temperature dyeing of cellulosic fibers.

A. Schmitz (Farbenfabriken Bayer AG). *J. Soc. Dyers Colourists 71:* 910-917 (December, 1955).

The fundamental principles determining the effect of elevated temperature on the substantivity, the rate of dyeing, and the levelling power of direct dyes are discussed with the aid of exhaustion curves. Since less dye is absorbed above 100°C. than at normal dyeing temperatures, dyeing should be continued in a cooling dyebath after the high-temperature stage. Although the equilibrium concentration of dye on the fiber is attained more rapidly at higher temperatures, the amount of dye absorbed in unit time is lower, provided that the dye liquor has free access to the fiber. Reasons for the more rapid dyeing observed in practice are better levelling power and reduced swelling: at lower temperatures swelling tends to constrict the interstices between the individual fibers, through which liquor can flow. An explanation is given for the surprising fact that the increase in levelling power produced by a given rise in temperature does not depend on its value at the lower temperature. Vat dyes and synthetic fibers are considered briefly. 15 references.

The dyeing and finishing of cellulose triacetate yarns and fabrics.

A. Mellor and H. C. Olpin (British Celanese Ltd). *J. Soc. Dyers Colourists 71:* 817-829 (December, 1955).

The physical and textile properties of cellulose triacetate fibers are such that fabrics made from them, or containing substantial proportions of them, may be permanently set in much the same way as are nylon and Terylene. The dyeing properties of triacetate yarns are compared with those of secondary acetate yarns, both alone and in admixture with other fibers. 7 references.

A new approach to the continuous dyeing of cellulose fabrics with direct cotton dyes.

J. Wegmann (Ciba Ltd). *J. Soc Dyers Colourists 71:* 777-789 (December, 1955).

It has been found that copper-complex polyazo dyes form loose complexes with certain amines, and that these complexes diffuse rapidly and can be applied evenly to the fiber. These amines are displaced during steam fixation in an ager and are subsequently removed by rinsing, which results in a normal dyeing. This method also permits simple and reliable continuous application of highly substantive direct dyes, such as are to be found in the range of copper-complex products. 25 references.

Advances in dyeing and finishing man-made fibers.

P. L. Meunier (E. I. du Pont de Nemours and Co., Inc.). *Am. Dyestuff Reptr. 45:* P8-P11 (January 2, 1956).

A brief review of recent progress and problems. 14 references.

The finisher's viewpoint.

J. A. Komninos (Waldrich Co.). *Am. Dyestuff Reptr. 45:* P5-P7, P11 (January 2, 1956).

A general historical review of trouble-shooting carrier-dyeing of Dacron, some specific synthetic fabric handling problems, and a discussion of additive finishing.

The processes during dyeing of synthetic fibers with disperse dyes.

B. Kramer. *Reyon Zellwolle Chemiefasern No. 9:* 607-609; *No. 10:* 682-687 (1955); *in German.* Summary in *BCIRA 36:* 28 (1956).

Recent developments in coloring synthetic fiber materials.

A. J. Hall. *Textile Merc. 134:* 18-22 (January 6, 1956).

Dyeing of polyacrylonitrile fibers, a pre-treatment with hot acid, use of quaternary phosphonium salts, dyeing of bright blue shades, dyeing nylon in green shades, and an after-treatment for dyed nylon. References are made to patents.

Diffusion measurements in polyamide fibers. Part 1.

W. Luck. *Melliand Textilber. 36, No. 9:* 927-928; *No. 10:* 1028-1033 (1955); *in German.* Through *BCIRA 35:* 807 (1955).

A recording microspectrophotometer for measuring the diffusion coefficient of dyes into the fibers is described and it is shown that the visible zones of dye penetration depend upon the following magnitudes: (1) diffusion coefficient, (2) affinity of the dye for the fiber (distribution coefficient), (3) the layer thickness of the section, (4) absorption spectrum of the dye, and (5) the wavelength of the light used. The values 1-5 can be optimally determined by means of the apparatus described.

Dyeing and finishing of nylon ribbons.

W. S. Willson (British Nylon Spinners Ltd). *J. Soc. Dyers Colourists 72:* 15-18 (January, 1956).

The process of setting nylon fabrics is explained and discussed, with particular reference to plant and methods necessary for nylon ribbons. The best sequence of operations for dyeing and finishing is suggested with emphasis on the precautions necessary to achieve good results. Alternative methods for future development are referred to, with suggestions for quicker or more direct finishing processes. Selection of dyes and bleaching agents, and methods of producing permanent effects in finishing are discussed.

Recent progress in the dyeing of Terylene polyester fiber.

A. S. Fern and H. R. Hadfield (Imperial Chemical Industries Ltd). *J. Soc. Dyers Colourists 71:* 840-856 (December, 1955).

The first part of this paper summarizes existing knowledge of the dyeing of polyester fibers, and indicates how the main developments in dye application have taken place. The second part describes the dyeing of blends of Terylene with wool. 32 references.

The dyeing of viscose rayon cakes with direct cotton dyes.

T. Flanagan (British Enka Ltd). *J. Soc. Dyers Colourists 71:* 790-796 (December, 1955).

The various classifications of direct cotton dyes according to their dyeing behavior are reviewed with reference to their assistance to the viscose rayon cake dyer in his choice of dyes. The interpretation of the graphical data of the dyeing characteristics of direct dyes and its limitations are discussed with particular reference to the value of this system in the selection of dyes for cake dyeing and the formulation of a suitable dyeing method. Some reference is also made to the advantages and limitations of high-temperature dyeing using pressurized machines. 5 references.

Dyeing viscose rayon above 100° C.

D. Cooke (Imperial Chemical Industries Ltd). *Dyer 115:* 59-63, 65-69 (January 6, 1956).

Shorter dyeing times and improved penetration have been achieved with direct dyes on packages. High temperature vat dyeing is also discussed.

Application of Soledon dyestuffs to spun viscose rayon piece goods.

J. B. Jackson. *Textile Mfr. 82:* 32-38 (January, 1956).

Dyeing properties, cloth preparation, dyeing methods and equipment, etc., are discussed.

Sequestering agents in wool and cotton dyeing.

H. E. Millson (American Cyanamid Co.). *Am. Dyestuff Reptr. 45:* P66-P81 (January 30, 1956).

A comprehensive survey. 12 figures. 13 tables. 18 references.

High temperature dyeing of wool.

D. R. Lemin. *Dyer 115:* 31-35 (January 6, 1956).

The advantages of high temperature package dyeing of wool include quick development of full fastness properties and a marked increase in leveling. Degradation precautions are given.

Control of ion concentrations in wool processing solutions. Part 2.

Textile Recorder 73: 59-61 (January, 1956).

Application of pH value in the control of wool dyeing processes. 11 references.

Modern printing methods.

E. C. A. Wolff. *Textil-Rundschau 10, No. 10:* 533-540 (1955); *in German.* Through *BCIRA 35:* 808 (1955).

In this lecture, the author discusses modern printing techniques (roller and screen printing, with a brief reference to the Orbis print and offset printing methods) and prints on cotton, regenerated cellulose, wool, silk, and synthetic fibers.

New techniques in screen printing.

C. Prett. *Melliand Textilber. 36, No. 10:* 1067-1068 (1955); *in German.* Through *BCIRA 35:* 808 (1955).

A new roller-printing machine (developed by KERAG AG, Switzerland) is described, and its advantages are enumerated. Its dimensions are 3 x 5 m, and it is constructed for up to nine colors.

Modern thickening agents for printing.

F. Born. *Reyon Zellwolle Chemiefasern No. 10:* 710 (1955); *in German.* Through *BCIRA 36:* 29 (1956).

Reference is made to Meypro-Gum CR and CRG, a chemically modified vegetable gum which can be used alone or with other thickeners for printing rayon, nylon and Perlon fabrics. Suitable compositions are given.

The alginates Lamitex and Protakyp in textile printing.

G. Torinus. *Reyon Zellwolle Chemiefasern No. 10:* 705-709 (1955); *in German.* Summary in *BCIRA 36:* 29 (1956).

Solvent resistant textile print blankets.

H. H. Bailey (Dewey and Almy Chemical Co.). *Textile Age 20:* 54-55 (February, 1956).

The Darex-Versaprint blanket for printing ranges is described and illustrated.

Better color mixing.

Modern Textiles Mag. 37: 42, 55, 68 (January, 1956).

Planning, equipment, print paste designations, and records of colorshop recipes are discussed.

MECHANICAL PROCESSES D 3

A modern approach to the raising of textile fabrics.

C. S. Whewell (University of Leeds). *J. Soc. Dyers Colourists 71:* 902-909 (December, 1955).

Methods of assessing the effectiveness of raising are discussed, and these are used to express quantitatively the part played by cloth construction and conditions of raising (pH, presence of lubricants and salts, etc.) in determining the response of a fabric to raising. Emphasis is laid on changes in thickness, tensile strength, and pile composition produced during raising. 6 references.

DRYING D 4

How to operate dryers efficiently. Part 1.

L. Walter. *Textile Bull. 82:* 81-83 (January, 1956).

In order to evaluate factors which influence dryer efficiency and thus cost of drying, the author first looks at the fundamentals of drying and drying equipment. Diagrams.

TESTING AND MEASUREMENT E

Technical temperature registration. Part 3. Errors due to misplacement and inherent in the instruments.

C. G. Booy. *Enka Breda Rayon Rev. (English ed.) 9:* 222-231 (December, 1955).

It was shown in the preceding two articles on this subject that, through misapplication or inexpert use, even a good instrument in perfect working order may register incorrectly, due partly to the dynamic and partly to the static properties of the process of heat transfer from the medium to the recorder. Other errors in addition to these may occur if the point of measurement is wrongly placed and if the instrument itself functions inaccurately. In this article a few examples are given of a correct and a wrong installation and the unavoidable errors inherent in the instruments are then considered. 7 references.

FIBERS E 1

Botanical studies in cotton quality. Part 3. Modified sorter technique.

J. P. Evenson (Empire Cotton Growing Corp., Namulonge, Uganda). *Empire Cotton Growing Rev. 33:* 12-15 (January, 1956).

A modification of the standard sorter test is described and results of a series of tests presented. A possible explanation for the results is put forward. The uses and limitations of the test are briefly described. 4 references.

The determination of lignin in flax fiber.

J. F. Couchman. *J. Textile Inst. 46:* T735-T741 (December, 1955).

The effect of the concentration of sulfuric acid, and of variations in the period and temperature of the digestion, on the determination of lignin in flax fiber was ascertained. 16 references.

A simplified cross-sectioning method for observation of skin and core of rayon.

H. Hara, H. Sado and I. Hashimoto (Kanegafuchi Spinning Co., Ltd). *(Letter to the editor). Textile Research J. 26:* 44-46 (January, 1956).

YARNS E 2

Frequency of yarn breakages.

E. Mayer. *Textil-Praxis (English ed.) No. 4:* 169-172 (November, 1955).

A testing device has been developed for predicting yarn weavability. The device takes dynamic weaving stresses into account.

Reliable assessment of yarn properties, etc., from small samples.

Textile Mfr. 82: 15-17 (January, 1956).

A small-scale spinning system developed by Shirley Institute gives very accurate results from samples of raw cotton, etc., weighing less than 1¼ ozs. The technique enables abnormalities to be rapidly detected before bulk material is processed and its scope extends to man-made fibers and blends. Photographs.

Methods of test for textiles. Part 14. Measuring the hardness of cones.

J. W. Y. Heijnis and J. Lako. *Enka Breda Rayon Rev. (English ed.) 9:* 213-221 (December, 1955).

The determination of the hardness of the cone is a useful supplementary check on the winding process in addition to careful inspection. The instrument used for the hardness test is a durometer, which gauges the hardness of the cone by means of a registering meter and a projecting pin. When the bottom surface of the meter is pressed down on the surface of the cone, the measuring pin projecting beyond the base is pressed back; the harder the cone is, the farther does the pin retreat and the higher is the meter reading. Features of the durometer are discussed and data are given for measurements made on cones.

A possible error in using the Zellweger evenness tester.

C. J. van Zwet and W. A. Nienhuis (Vezelinstituut T.N.O.). *J. Textile Inst. 46:* P790-P793 (December, 1955).

In the course of some experiments carried out in a worsted mill, it appeared that the testing of slivers with the Zellweger apparatus, type B5, yielded unsatisfactory and unreproducible results. It was, therefore, decided to investigate the causes of this phenomenon more thoroughly. The difficulties eventually proved to be due to an oversensitivity of the first two slots of the tester. This over-sensitivity could not be revealed by the ordinary test methods, as described in the maker's instructions. It caused a too wide slot to be chosen for the measurements. It was seen from the experiments that the material under test should fill the slot adequately. The sensitivity of the slot was adjusted.

A method for the calculation of the CB(L) curve.

C. J. van Zwet (Vezelinstituut T.N.O.). *J. Textile Inst. 46:* P794-P798 (December, 1955).

The time required for the calculation is considerably shortened by this new method. Each curve was determined in 6-8 man-hours. The method is suitable for routine tests and, apart from an ordinary calculating machine, no expensive apparatus is necessary. A commentary by D. R. Cox is included.

FABRICS E 3

Sheets and pillowcases.

Consumer Reports 21: 21-24 (January, 1956).

In setting up its test program for muslin, percale, and nylon sheets and pillowcases, Consumers Union took into consideration Federal Specifications, standards approved by the American Standards Association, and standards of the American Home Economics Association. Primary concern was with those performance factors which serve as indexes of estimated durability. At least six test samples of each brand were put through ten laundering cycles in automatic washers and tumble-action dryers, and then subjected to tests for abrasion resistance, tensile strength, and elongation. Two or more composite samples of the six samples of each brand were tested, both before and after laundering, to observe the effects on the cotton cellulose in each sample of the alkalis and

bleaches used in the finishing process, and in laundering (fluidity tests). A chart of brand ratings is given.

Strength factor.

B. L. Whittier (North Carolina State College). *Textile Forum 12:* 20-21, 32 (December, 1955).

In establishing a Fabric Strength Factor, the observed strength is converted to a basis related to some characteristic that might influence the strength of a fabric. The factor described in this article is based on a relationship of strength to weight.

The development of warp-knit tricot.

J. C. Meijberg. *Enka Breda Rayon Rev. (English ed.) 9:* 209-212 (December, 1955).

The development of European and American standards for strength, washability, shrinkage, etc., of warp-knit tricot is discussed.

Tests for determining the residual shrinkage value in cotton fabrics on the basis of the Dahlem method.

M. Schnabel. *Melliand Textilber. 36, No. 10:* 1049-1050 (1955); *in German.* Through *BCIRA 35:* 815 (1955).

Experiments were carried out to ascertain to what extent a fabric is still able to shrink after the shrinkage determination by the Dahlem method, viz. for how long shrinking must be continued until no appreciable change in the residual shrinkage value occurs. The results obtained indicate that an almost constant shrinkage value can be reached after treating the fabric for one hour in a boiling, agitated bath containing 3 g soap and 2 g soda per 1 liter of water.

Photometric measurement of fabric regularity.

A. Barella, J. Cegarra, and C. Pujol. *Industrie Textile:* 671-675 (September, 1955); *in French.* Through *BCIRA 36:* 37 (1956).

Among the difficulties, arising from photometric methods for measuring fabric regularity either from its transparency or reflectance, is the effect of the fabric color on the results obtained. The present study shows that, under identical conditions of the photocell, it is possible to eliminate the color factor of the fiber and to measure the transparency of fabrics photometrically, regardless of their color. Comparison can also be made between differently-colored fabrics.

OTHER E 4

Determination of silicones in textile materials.

G. M. Petty (Arkansas Co., Inc.). *Anal. Chem. 28:* 250-251 (February, 1956).

An estimation of the amount of silicone in textile materials is required for the control of this process for the durable waterproofing of textile materials. In a method which requires no unusual or specialized equipment, the textile material, treated with silicone, is wet-ashed, using concentrated sulfuric and nitric acids and, eventually, concentrated perchloric acid. The silica is determined by conventional methods. Attempts to extract cured silicones from textile materials by solvents gave unsatisfactory results. 2 references.

Measurement of the extent of delustering of filament fabrics. Part 2. Reflection of unpolarized light.

R. Jeffries (British Rayon Research Association). *J. Textile Inst. 46:* T759-T777 (December, 1955).

A detailed study has been made of the reflection characteristics of fabrics woven from low-twist filament yarns. As a preliminary, pads of parallel yarn were investigated. It is shown that the main features of the reflection of light from fabrics can be explained in terms of the reflecting properties of the warp and weft considered separately as pads of yarn. The effect of delustering on the reflection characteristics of such pads and fabrics has been investigated; the results confirm the theory and establish the basis of the method for measuring the extent of deluster described and defined in an earlier paper of this series. In this method, the illuminated sample is rotated in its own plane and an orientation-intensity curve is obtained at a selected angle of collection. At this angle of collection, the unscattered reflection from the warp, the unscattered reflection from the weft and the scattered reflection can be separately identified on the curve. The ratios of unscattered light to scattered light are used as indexes of deluster. 12 references.

INDUSTRIAL ENGINEERING F

The technical aspect of textile productivity.

A. Harrer. *Industrie Textile:* 709-718 (October, 1955); *in French.* Through *BCIRA 36:* 44 (1956).

Methods of studying industrial efficiency in various countries are reviewed, with reference to the problems associated with the size of the factory, raw materials (quantity and quality of the

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

Col. 65

FIBERS A

NATURAL FIBERS A 1

Process for separating fibrous vegetable materials into pith and fiber portions.

P. M. Horton and A. G. Keller (to Louisiana State University). USP 2 729 856 and 2 729 858, January 10, 1956.

YARN PRODUCTION B

Process and device for converting a continuous tow of artificial filaments into a sliver comprising staple lengths.

I. F. Stewart and J. B. Seed (Imperial Chemical Industries Ltd). BP 730 218, May 18, 1955. Through *BCIRA 35:* 764 (1955).

OPENING, PICKING, FIBER PREPARATION B 1

Means for preventing malfunctioning of automatic fiber blending system.

W. F. Leineweber, Jr. (to W. D. Dodenhoff Co., Inc.). USP 2 727 279, December 20, 1955.

Pressure-applying mechanism for lap winding machine.

G. Smith (to Whitin Machine Works). USP 2 728 531, December 27, 1955.

Machine for making resilient filter elements and batts.

J. B. Sebok and F. Sebok (to Houdaille-Hershey Corp.). USP 2 728 953, January 3, 1956.

CARDING AND COMBING B 2

Single roller card for the conversion of a picker lap into a set of slivers.

L. Schorsch (to Neue Baumwoll Spinnerei und Weberei Hof). BP 730 543, May 25, 1955. Through *BCIRA 35:* 766 (1955).

Col. 66

Sliver-coiling apparatus for carding engines.

W. H. Watson, J. Osbaldeston and L. Buckley (to T.M.M. (Research) Ltd). USP 2 728 113, December 27, 1955.

DRAWING AND ROVING B 3

Roller weighting mechanism of a high-draft system.

Estirajes Balmes S. A. (Spain). BP 730 041, May 18, 1955. Through *BCIRA 35:* 767 (1955).

Endless belt drafting mechanisms.

J. M. S. Casanovas. BP 730 063, May 18, 1955. Through *BCIRA 35:* 767 (1955).

Means for ensuring that a regulated length of sliver is fed into a coiler can.

W. Meredith and J. I. Booth. BP 730 662, May 25, 1955. Through *BCIRA 35:* 767 (1955).

Sliver coiling apparatus (stationary can).

C. Warrington (to Tweedales and Smalley (1920) Ltd). BP 730 691, May 25, 1955. Through *BCIRA 35:* 767 (1955).

Top roll.

E. P. Waite (to Cole Engineering Corp.). USP 2 727 280, December 20, 1955.

Mechanism for simultaneous transverse adjustment of bottom back roll bearings in a drafting machine.

W. W. Werth and W. E. McFarland (to Whitin Machine Works). USP 2 728 111, December 27, 1955.

Gill drawing frame.

R. C. Berker. USP 2 728 112, December 27, 1955.

Drafting apparatus with multiple porcupines.

W. Holdsworth (to Holdsworth Manufactur-

ing Co., Inc.). USP 2 728 954, January 3, 1956.

Clearer for the top drawing rollers of a spinning machine.

E. F. Rose. USP 2 728 955, January 3, 1956.

Sliver drafter evener.

D. E. Cushing and H. Cushing. USP 2 729 857, January 10, 1956.

Drafting mechanism.

J. Noguera (to Casablancas High Draft Co. Ltd). USP 2 729 859, January 10, 1956.

SPINNING, WINDING, TWISTING B 4

Flyers.

Crefelder Baumwoll Spinnerei (Germany). BP 730 254, May 18, 1955. Through *BCIRA 35:* 768 (1955).

A high-speed flyer which dispenses with the bottom ring.

J. B. Jowett (to Fairbairn Lawson Combe Barbour Ltd). BP 730 400, May 25, 1955. Through *BCIRA 35:* 768 (1955).

Coiling textile threads.

Societe Rhodiaceta (France). BP 730 485, May 25, 1955. Through *BCIRA 35:* 765 (1955).

Bobbin with replaceable end plugs for use with different sizes of spindle.

A. J. Compton and E. M. Wilkins. BP 730 542, May 25, 1955. Through *BCIRA 35:* 768 (1955).

Means for varying the drive of an uptwister for cone winding.

A. Davenport (to Ernest Scragg and Sons Ltd). BP 730 544, May 25, 1955. Through *BCIRA 35:* 768 (1955).

Stop-motion for spinning or like machine.

J. R. Bee (to Fairbairn Lawson Combe Barbour Ltd). BP 730 666, May 25, 1955. Through *BCIRA 35:* 768 (1955).

Twisting and plying spindle balloon control.

A. W. Vibber. USP 2 727 353, December 20, 1955.

Expandable mandrel for use on winding machines.

V. G. Van Colle and T. Fishwick (England). USP 2 727 700, December 20, 1955.

Twisting spindle balloon control.

A. W. Vibber. USP 2 728 185, December 27, 1955; USP 2 729 932, January 10, 1956.

Method of and apparatus for forming precision wound yarn packages.

R. J. Clarkson (to United States Rubber Co.). USP 2 729 051, January 3, 1956.

Twisting spindle balloon control.

A. W. Vibber. USP 2 729 052, January 3, 1956.

Reversible double-flange traveler ring.

V. Lindner (to Lenkotex Co.). USP 2 729 053, January 3, 1956.

Spinning rolls composed of an oil-resistant synthetic rubber composition containing an anti-licking surface active agent.

M. Balkin and D. G. Turner (to George Angus and Co. Ltd). USP 2 729 860, January 10, 1956.

YARNS B 5

Production of a nylon crepe yarn.

T. H. Potter and A. A. Aston (to British Nylon Spinners Ltd). BP 730 498, May 25, 1955. Through *BCIRA 35:* 769 (1955).

Apparatus for and method of preparing textile strands by twisting, twining, wrapping and covering.

F. Honig. USP 2 729 050, January 3, 1956.

FABRIC PRODUCTION C

Electrical device for stamping a mark on a traveling fabric or warp.

Gebruder Sucker GmbH (Germany). BP 730 556, May 25, 1955. Through *BCIRA 35:* 771 (1955).

Shuttle lock in device for making nets.

L. A. Ederer (to Linen Thread Co., Inc.). USP 2 727 425, December 20, 1955.

Web winding.

F. C. Bower and R. J. Jacobs (to Black-Clawson Co.). USP 2 728 532, December 27, 1955.

WARPING, SLASHING, YARN PREPARATION C 1

Hydraulic drive for warping machine.

K. Liebrandt (Germany). BP 730 282, May 18, 1955. Through *BCIRA 35:* 771 (1955).

Hank swift.

F. Ridgway (to Arundel, Coulthard and Co. Ltd). BP 730 330, May 18, 1955. Through *BCIRA 35:* 771 (1955).

Process of sizing synthetic yarn with hydrolyzed polyalkyl acrylates.

G. R. Barrett (to Monsanto Chemical Co.). USP 2 727 835, December 20, 1955.

Individual drive and selector for warping machines.

A. J. Luchansky (to Progressive Specialties). USP 2 728 130, December 27, 1955.

Adjustable eyeboard for warping.

R. R. Barnes, J. F. Keith, and C. C. Robinson, Jr. (to American Enka Corp.). USP 2 728 131, December 27, 1955.

Axminster setting frame.

E. H. Shattuck and J. V. Curran, Jr. (to Alexander Smith, Inc.). USP 2 728 132, December 27, 1955.

Winding apparatus with automatic bobbin-change.

W. Siegenthaler (to Maschinenfabrik Scharer). USP 2 728 528, December 27, 1955.

Yarn tail disposal device for automatic bobbin winding machines.

J. W. May (to Deering Milliken Research Corp.). USP 2 729 398, January 3, 1956.

Traverse cam mechanism for winding machines.

E. Stammwitz (Germany). USP 2 729 399, January 3, 1956.

WEAVING C 2

Warp stop motions for looms.

E. Seaton. BP 730 047, May 18, 1955. Through *BCIRA 35:* 772 (1955).

Shuttle tongue.

F. Greenwood and J. Greenwood (to Greenwood and Co. (Todmorden) Ltd). BP 730 071, May 18, 1955. Through *BCIRA 35:* 771 (1955).

Pattern card control means for jacquards.

A. Firth (to J. T. Hardaker Ltd). BP 730 317, May 18, 1955. Through *BCIRA 35:* 772 (1955).

Weft cutting mechanisms.

R. Hrdina (Czechoslovakia). BP 730 551, May 25, 1955. Through *BCIRA 35:* 772 (1955).

Loom control attachment.

E. C. Alix. USP 2 722 241, November 1, 1955.

Dobby loom and method of weaving.

A. Widmer (to Gebr. Staubli and Co.). USP 2 727 538, December 20, 1955.

Loom replenishing means.

E. C. Nichols (to Draper Corp.). USP 2 727 539, December 20, 1955.

Circular loom.

F. F. Polnauer (to Rototex Research Corp.). USP 2 728 357, December 27, 1955.

Method of weaving wire cloth.

W. A. Kools. USP 2 728 358, December 27, 1955.

Thread clamp for looms.

E. Pfarrwaller (to Sulzer Freres, Soc. anon.). USP 2 728 359, December 27, 1955.

A picker assembly for the picker stick of an underpick loom.

H. Hargreaves (England). USP 2 728 360, December 27, 1955.

Method of weaving pile fabrics.

F. P. Groat (to Magee Carpet Co.). USP 2 729 246, January 3, 1956.

Shuttle spring.

F. E. O'Neil (to Draper Corp.). USP 2 729 247, January 3, 1956.

Apparatus for automatically removing lint from above and below the warp of textile looms.

C. D. Miller and F. N. Becker (to American Monorail Co.). USP 2 729 845, January 10, 1956.

Heddle frame.

V. C. Hassold (to Steel Heddle Manufacturing Co.). USP 2 730 137, January 10, 1956.

Shuttle motion in a narrow fabric loom.

A. Schiappa. USP 2 730 138, January 10, 1956.

Temple for looms.

T. Ryffel (Switzerland). USP 2 730 139, January 10, 1956.

Stopping device in double shuttle loom.

F. A. Lovshin, A. J. Dufourd and R. T. Korolyshun (to Sidney Blumenthal and Co.,

Inc.). USP 2 730 140, January 10, 1956.

KNITTING C 3

Circular knitting machine.

G. D. Dowell (to Hanes Hosiery Mills Co.). USP 2 727 373, December 20, 1955.

Knitting machine.

F. R. Page (to Scott and Williams, Inc.). USP 2 727 374, December 20, 1955.

Tuck and wrap circular knitting apparatus.

F. K. Stevens and G. L. Davis (to Piedmont Hosiery Mills, Inc.). USP 2 728 210, December 27, 1955.

Needle-moving mechanism for knitting machines.

W. W. Lenkeit and J. Biggel (Germany). USP 2 729 081, January 3, 1956.

Automatic take-up means for circular knitting machines.

J. F. Tew (to Scott and Williams, Inc.). USP 2 729 082, January 3, 1956.

FABRICS C 4

Tape for zip fasteners.

J. R. Lilley (to Narrow Fabrics (Lilleys) Ltd). BP 730 184, May 18, 1955. Through *BCIRA 35:* 772 (1955).

Non-woven fabric of randomly distributed fiber impregnated with a solution of sodium carboxymethylcellulose.

G. M. Schroder (to Steralon Process International Inc.). BP 730 251, May 18, 1955. Through *BCIRA 35:* 766 (1955).

Manufacture of non-woven fabrics.

N. V. Koninklijke Vereenigde Tapijtfabrieken (Netherlands). BP 730 269, May 18, 1955. Through *BCIRA 35:* 766 (1955).

Corded or ribbed fabrics.

C. E. Neisler, Jr. (to Neisler Mills, Inc.). USP 2 728 361, December 27, 1955.

Apparatus for making mineral wool felt.

R. M. Downey (to U. S. Gypsum Co.). USP 2 729 861, January 10, 1956.

FINISHING AND CHEMICAL PROCESSING D

Tension control for textile fabric finishing machines.

P. Cook (to Cook-P. and N. Machine Co., Inc.). USP 2 727 378, December 20, 1955.

Finishing apparatus for heating web material by contact with molten metal.

E. Farnworth and G. H. Wood, Jr. (to Aspinook Corp.). USP 2 728 567, December 27, 1955.

Device for stretching superpolyamide and superpolyurethane type yarns.

P. Kummel (to Inventa AG). USP 2 728 973, January 3, 1956.

CHEMICAL PROCESSES D 1

Laminated fabrics.

M. V. Forward and S. Shaw (to British Nylon Spinners Ltd). BP 730 042, May 18, 1955. Through *BCIRA 35:* 780 (1955).

Artificial leather.

H. Eberle and O. Saladin (Germany). BP 730 221, May 18, 1955. Through *BCIRA 35:* 780 (1955).

Rubberized fabric.

M. Sabner. BP 730 714, May 25, 1955. Through *BCIRA 35:* 780 (1955).

Thread manufacturing reel having liquid applying and liquid removing means.

H. A. Kuljian. USP 2 727 381, December 20, 1955.

Bleaching of polyamides.

A. G. Lutgerhorst (to N. V. Onderzoekingsinstituut Research). USP 2 727 804, December 20, 1955.

Textile lubricants.

M. Duke, F. Fortess and C. Hohing, Jr. (to Celanese Corp.). USP 2 727 860, December 20, 1955.

Stabilization treatment of viscose rayon with alpha-hydroxyadipaldehyde.

J. P. Dosier (to American Enka Corp.). USP 2 728 628, December 27, 1955.

Process for the liquid aftertreatment of a sheet of spaced separate parallel synthetic threads.

B. J. Blomberg (to American Enka Corp.). USP 2 728 629, December 27, 1955.

Process for the production of crinkled polyacrylonitrile yarns.

N. Drisch and P. Herrbach (to Textile & Chemical Research Co. Ltd). USP 2 728 631, December 27, 1955.

Aqueous phosphate stabilized titanium solution for flame-resistance.

D. Duane (to National Lead Co.). USP 2 728 680, December 27, 1955.

Flame retarding solution and treatment.

H. H. Beacham and I. M. Panik (to National Lead Co.). USP 2 728 691, December 27, 1955.

Method of preventing shrinkage of wool.

F. L. Dennett (to Dow Corning Corp.). USP 2 728 692, December 27, 1955.

Method and apparatus for coating fibers.

W. W. Drummond and G. E. Smock (to Owens-Corning Fiberglas Corp.). USP 2 728 972, January 3, 1956.

Tension control means in fabric treating apparatus.

F. B. Morrill and E. C. Rust, Jr. (to James Hunter Machine Co.). USP 2 729 446, January 3, 1956.

Process of making alkali-insoluble cellulose glycolic acid ether fabric.

L. Balassa and H. A. Christoph. USP 2 729 535, January 3, 1956.

Open width wet processing apparatus and process.

J. B. Lasley (to Springs Cotton Mills, Inc.). USP 2 729 537, January 3, 1956.

Method of dry cleaning fabric and simultaneously rendering the same antistatic.

R. B. Trusler (to Davies-Young Soap Co.). USP 2 729 576, January 3, 1956.

Method of imparting antistatic properties to textile materials.

O. C. Bacon and L. E. Hughes (to E. I. du Pont de Nemours and Co.). USP 2 729 577, January 3, 1956.

Method for making unwoven glass fabrics.

P. Modigliani (to Johns-Manville Corp.). USP 2 729 582, January 3, 1956.

Treating vegetable fibrous material with chlorine gas.

F. G. L. Becker (to Cellulose Development Corp., Ltd). USP 2 730 426, January 10, 1956.

Shrinkage control of cellulosic and wool textiles with diglycidyl ether compounds.

T. J. Suen (to American Cyanamid Co.). USP 2 730 427, January 10, 1956.

Method and composition for washing and bleaching fibrous materials.

K. Lindner (to Tepha GmbH). USP 2 730 428, January 10, 1956.

Continuous process for the production of plastic resin coated glass fibers.

C. C. Swann. USP 2 730 455, January 10, 1956.

Antistatic treatment of textile yarns.

P. A. Winsor (to Shell Development Co.). USP 2 730 464, January 10, 1956.

DYEING AND PRINTING D 2

Processes of dyeing materials with inorganic metallic compounds.

P. F. Crosland (to Crosland and Pickstone Ltd). BP 730 601, May 25, 1955. Through *BCIRA 35:* 779 (1955).

Process to improve the suppleness and affinity for dyes of slivers, yarns or fabrics of glass filaments.

Soc. anon. des Manufactures des Glaces et Produits Chimiques de Saint-Gobain, Chauny et Cirey (France). BP 730 713, May 25, 1955. Through *BCIRA 35:* 780 (1955).

Apparatus for the treatment of textile materials at elevated temperatures.

B. Steverlynck (to Groeninghe Ververij PVBA). USP Reissue 24 109, January 10, 1956.

Process of dyeing polyethylene terephthalate fiber.

O. S. Larson (to E. I. du Pont de Nemours and Co.). USP 2 727 803, December 20, 1955.

Process of dyeing acrylonitrile textile by cuprous ion technique.

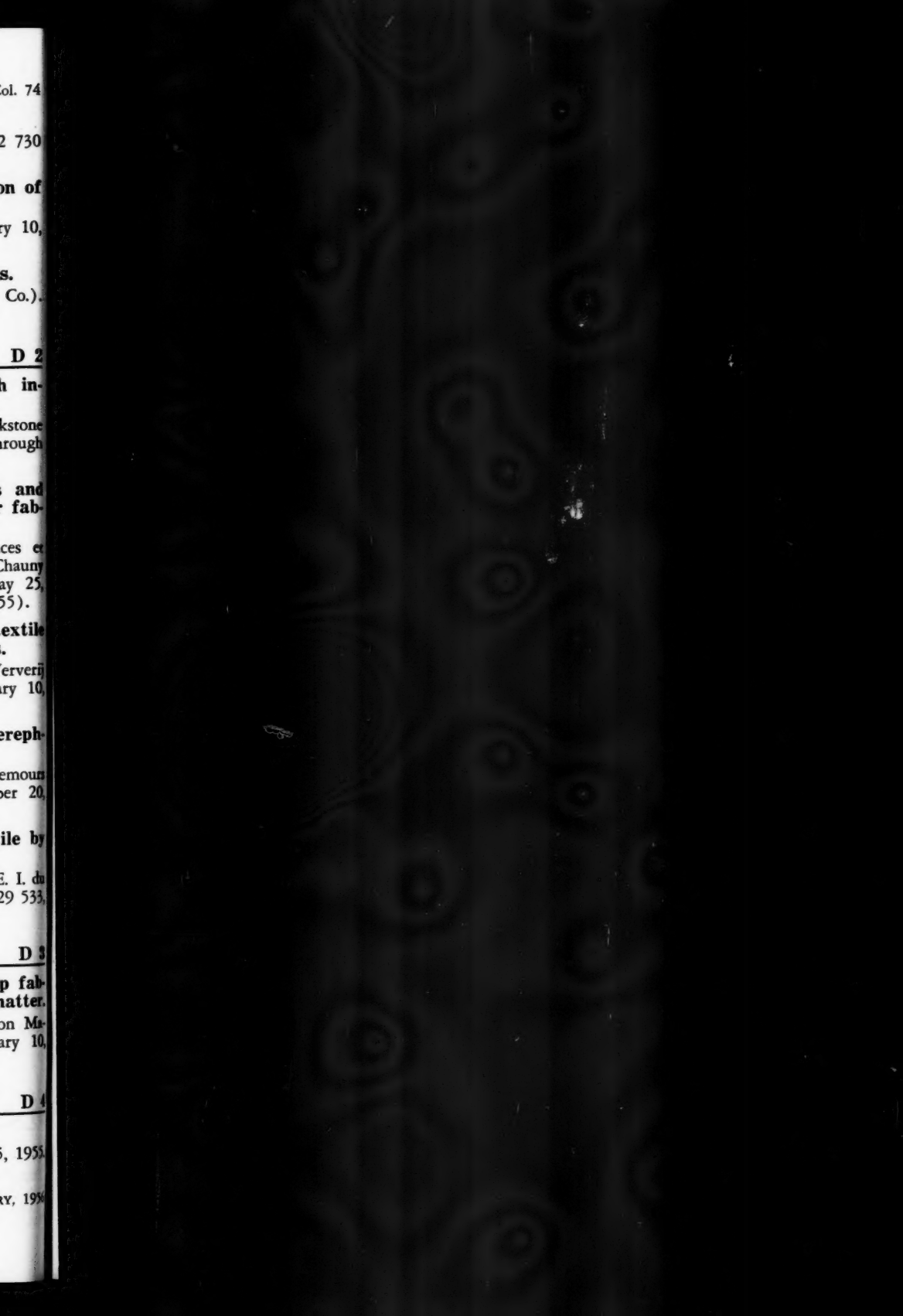
F. W. Glaze, Jr. and S. B. Speck (to E. I. du Pont de Nemours and Co.). USP 2 729 533, January 3, 1956.

MECHANICAL PROCESSES D 3

Continuous method of treating strip fabric to remove charred vegetable matter.

W. N. Hadley (to Parks and Woolson Machine Co.). USP 2 730 113, January 10, 1956.

DRYING D 4

Tentering and drying apparatus.

B. Kawaguchi. BP 730, 440, May 25, 1955. Through *BCIRA 35:* 781 (1955).